Montana Comprehensive Assessment System *(MontCAS, Phase 2)*

Criterion-Referenced Test (CRT)

COMMON ITEM RELEASE
GRADE 10

OPI

OFFICE OF PUBLIC INSTRUCTION

General Directions

This test contains six sessions: three in reading and three in mathematics. The sessions are made up of multiple-choice questions and questions for which you must show your work or write out your answers. Write your answers to all of the questions in your Student Response Booklet. For the reading parts of the test, read each selection before answering the questions.

For each multiple-choice question, choose the best answer. Fill in the bubble in your Student Response Booklet that corresponds to your answer choice for that question.

Some questions ask you to show your work or to write out your answers. Write your answers to these questions in the spaces provided in your Student Response Booklet. Your answers must fit in the spaces provided. Any part of an answer outside the box might not be scored.

Be sure to answer all parts of each question, and to answer completely. For example, if a question asks you to explain your reasoning or show your work, be sure to do so. You can receive points for a partially correct answer, so try to answer every question.

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Reading
Session 1

This test session includes reading selections, multiple-choice questions, and a question for which you must write out your answer. After you read each selection, answer the questions about it in the spaces provided in your Student Response Booklet. You may not use a dictionary or any other reference tool during this session.

This passage is from a book of brief biographical sketches of heroic individuals. Read the passage for an introduction to Tecumseh, a brilliant Native American leader, and then answer the questions that follow.

Tecumseh

c. (circa) March 1768—October 5, 1813

Dennis Denenberg

If you have studied our country's history carefully, you know that before our Constitution was adopted in 1787, we were governed by a document called the Articles of Confederation.

"Confederation" means a joining together for a common purpose. The newly independent American colonies joined together as states in a confederation. Their unity gave them strength.

That's exactly what Tecumseh tried to do with numerous Native American tribes. White people were sweeping across the country, taking land from Native Americans and offering little or no compensation. Tecumseh worked hard to unite the Indians into a strong Shawnee Confederation that could resist this invasion. But it wasn't easy. The members of each tribe were fiercely proud of their individual tribal identities and leaderships.

Tecumseh was a gifted speaker. His words convinced Native Americans that unity would help them hold on to their land. Traveling thousands of miles through the territory east of the Mississippi River, Tecumseh forged the largest united group of Native American nations ever. In 1808 he and his brother, Tenskwatawa, called the Prophet, established a village called Prophetstown. There, confederation members could follow traditional Native American ways and train to defend their land.

Despite its unity, however, the confederation was still unable to halt the westward movement of white settlers. In 1811, Tecumseh's brother sent the unified warriors into battle against white soldiers, although Tecumseh warned that the confederation was not yet strong enough. The warriors were defeated. Prophetstown was destroyed. The Native Americans were scattered.

Like the shooting star that streaked across the sky the night Tecumseh was born, the Shawnee Confederation shone brightly, brilliantly, for a moment. Then it was gone. But just as the image of that shooting star loomed large in the memories of those who saw it, so does Tecumseh's legacy as a man of influence live on. Respect for him extends far beyond the Native American community. Throughout our country, you will find towns, schools, even a navy submarine named in his honor. He is a hero every kid should meet.

DIVE IN!

The Importance of Tecumseh by Myra H. and William H. Immell (Lucent Books, 1997), 112 pages. Illustrated.

The Importance of Tecumseh and the Shawnee Confederacy by Rebecca Stetoff (Facts on File, 1998), 138 pages. *Library of American Indian History*

Please go on to the next page.

Mark your answers to questions 1 through 5 in the section marked "Reading—Session 1" in your Student Response Booklet.

1. According to the passage, it was challenging for Tecumseh to unite the Indians because the tribes were
   A. widely scattered across the country.
   B. very proud of their individual identities.
   C. fighting hard to defend themselves.
   D. suspicious of treaties with the settlers.

2. Which statement in the passage is an opinion?
   A. "Despite its unity, however, the confederation was still unable to halt the westward movement of white settlers."
   B. "The warriors were defeated."
   C. "Throughout our country, you will find towns, schools, even a navy submarine named in his honor."
   D. "He is a hero every kid should meet."

3. Which method would be the **most** direct way to find more information about Tecumseh?
   A. Read one of the books listed in "Dive In!"
   B. Scan the index of a book about American history.
   C. Look up "Tecumseh" in the *American Heritage Dictionary*.
   D. Search a library catalog for books about the Shawnee Confederation.

4. Which phrase **best** describes how the information is organized in this passage?
   A. in chronological order
   B. from problem to solution
   C. by comparison and contrast
   D. from least important to most important

5. The author's **main** purpose in this passage is to
   A. warn.
   B. defend.
   C. entertain.
   D. inform.

Please go on to the next page.

Pablo Neruda is a Nobel Prize–winning poet from Chile. Read this passage to learn about an event in Neruda's childhood that taught him a lesson about life and then answer the questions that follow.

from Childhood and Poetry

Pablo Neruda

One time, investigating in the backyard of our house in Temuco the tiny objects and minuscule beings of my world, I came upon a hole in one of the boards of the fence. I looked through the hole and saw a landscape like that behind our house, uncared for, and wild. I moved back a few steps, because I sensed vaguely that something was about to happen. All of a sudden a hand appeared—a tiny hand of a boy about my own age. By the time I came close again, the hand was gone, and in its place there was a marvelous white sheep.

The sheep's wool was faded. Its wheels had escaped. All of this only made it more authentic. I had never seen such a wonderful sheep. I looked back through the hole but the boy had disappeared. I went into the house and brought out a treasure of my own: a pine cone, opened, full of odor and resin, which I adored. I set it down in the same spot and went off with the sheep.

I never saw either the hand or the boy again. And I have never again seen a sheep like that either. The toy I lost finally in a fire. But even now, in 1954, almost fifty years old, whenever I pass a toyshop, I look furtively into the window, but it's no use. They don't make sheep like that any more.

I have been a lucky man. To feel the intimacy of brothers is a marvelous thing in life. To feel the love of people whom we love is a fire that feeds our life. But to feel the affection that comes from those whom we do
4 not know, from those unknown to us, who are watching over our sleep and solitude, over our dangers and our weaknesses—that is something still greater and more beautiful because it widens out the boundaries of our being, and unites all living things.

That exchange brought home to me for the first time a precious idea: that all of humanity is somehow together. That experience came to me again much later; this time it stood out strikingly against a background of trouble and persecution.

It won't surprise you then that I attempted to give something resiny, earthlike, and fragrant in exchange for
6 human brotherhood. Just as I once left the pine cone by the fence, I have since left my words on the door of so many people who were unknown to me, people in prison, or hunted, or alone.

That is the great lesson I learned in my childhood, in the backyard of a lonely house. Maybe it was nothing but a game two boys played who didn't know each other and wanted to pass to the other some good things of life. Yet maybe this small and mysterious exchange of gifts remained inside me also, deep and indestructible, giving my poetry light.

Translated by Robert Bly

Some Web sites about Pablo Neruda

Nobel Prize in Literature 1971: Pablo Neruda: includes text of Neruda's Nobel lecture. www.nobel.se/literature/laureates/1971

Poems of Pablo Neruda: includes a list of Pablo Neruda's poems. www. public.asu.edu/~nielle/neruda.htm

Pablo Neruda: hosted by the University of Chile, this site is dedicated to the Chilean poet, Pablo Neruda. Produced by the Pablo Neruda Foundation. www.uchile.cl/neruda

Pablo Neruda Poems: Here are some poems from one of the world's greatest poets, Pablo Neruda. Enjoy!! . . . www.lone-star.net/literature/pablo

Please go on to the next page.

Mark your answers to questions 6 through 10 in the section marked "Reading—Session 1" in your Student Response Booklet.

6. In the first paragraph, minuscule means the same as

   A. odd.
   B. small.
   C. imaginary.
   D. mysterious.

7. The author gives the boy his pine cone because it is

   A. a valuable object.
   B. a prized possession.
   C. old and fully opened.
   D. too odorous to keep.

8. In paragraph 4, the author uses the phrase "a fire that feeds our life" to suggest that love

   A. makes life meaningful.
   B. can be hard to control.
   C. is less essential than food.
   D. burns in the hearts of lovers.

9. In paragraph 6, what does Neruda mean when he says, "I have since left my words on the door of so many people who were unknown to me"?

   A. His poetry has connected him to people he does not know.
   B. He has written many poems about people he does not know.
   C. He hopes his poems will be found by people he does not know.
   D. His poetry is usually published by people he does not know.

10. Which Web site listed after the passage would **most likely** provide the greatest amount of information about Pablo Neruda's life?

    A. Nobel Prize in Literature 1971: Pablo Neruda
    B. Poems of Pablo Neruda
    C. Pablo Neruda
    D. Pablo Neruda Poems

Please go on to the next page.

Read this article about soccer player Mia Hamm and then answer the questions that follow.

Goal-Oriented

Joel Poiley

Mia Hamm never set out to be a trailblazer for women's rights or female equality in athletics. But her skill and personality made her the face of women's soccer.

"I can't remember not playing," Hamm said in an interview. "I'm an athlete. I can't sing you a song or paint you a picture, but I was always a pretty good athlete. It was the way I expressed myself. I've made incredible friends; I've seen amazing places. It's been awesome."

Hamm burst on the soccer scene when she joined the U.S. national team at 15. Now acknowledged as the most recognized female soccer player in the world,
3 Hamm owns the all-time international scoring record for women *and* men. That's not bad, especially when you consider that U.S. women have participated in international competition only since 1985.

If an event matters in U.S. women's soccer, Hamm is there, wearing her familiar number 9 jersey. She led the U.S. team to the 1999 Women's World Cup title, after scoring the opening goal against Denmark in front of a sell-out crowd at Giants Stadium in the New York City area. That victory spawned the formation of the Women's United Soccer Association (WUSA) three years ago.

The WUSA features the world's best female soccer players, including all of the players from the 1999 Women's World Cup championship team and athletes from 14 different countries. But no player shines brighter than Hamm.

"The competition level is unparalleled because we get to play the best players from all over the world. It doesn't get much better than that," said Hamm. "What's great is that you're not just playing against their players but the whole history of their game. You look at Germany, extremely technical and very well organized, disciplined. Brazil is all about flair. Every single player, it seems, can hit a free kick, dribble through the entire team. Even the goalkeeper can. It's kind of their form of expression.

"There is also such a sense of pride when we step on the field representing the United States. The World Cup to me is like the Super Bowl to football players or the World Series to baseball players. What makes it even more special is that it doesn't occur every year." (World Cup competition is held every four years.)

Girls Playing in Record Numbers

Inspired by the success of Hamm and her teammates, more than 20 million women worldwide
8 now play soccer, according to a 2001 FIFA survey. More encouraging, about 80 percent are high-school juniors or still in their teens. The U.S. alone has more than 18 million male and female participants.

Hamm said the sport appeals to girls because size isn't an issue. "Another reason is a lot of girls
9 grow up playing coed youth soccer, which helps build confidence as they head into adolescence," said Hamm. "The sport is very grassroots, allowing

Please go on to the next page.

a lot of girls to begin playing very young, and it is one of the few in this country where girls are judged on par with the boys because the game is identical for both genders."

The sport's worldwide appeal with women was evident in the popularity of the movie *Bend It Like Beckham*, which centers on an Indian girl born in England. Her only desire is to become a soccer star like her idol, English superstar David Beckham.

The sport's appeal in the U.S. has been boosted by the availability of Title IX scholarships. Title IX* was enacted in 1972 to allow women equal funding and equal participation in sports in government-funded universities. At that time, according to the National Collegiate Athletic Association (NCAA), fewer than 30,000 women participated in sports and recreation programs. Today, nearly 150,000 women are competing in sports at NCAA member institutions. According to a recent membership survey, women now account for 41 percent of the participants in intercollegiate athletics and receive about 42 percent of the scholarship dollars.

Many colleges started women's soccer programs in the late '70s and early '80s because the programs were inexpensive. Also, the facilities, such as playing fields, were already in place.

Hamm, who says that Title IX paved the way for her to play in school, won four college championships at the University of North Carolina and was named Soccer America Women's Collegiate Player of the Decade in 1999.

She encourages all young girls to try soccer, as much for the social interaction as for the competition.

"Even if you aren't the best player, you can learn a lot of life lessons from playing a sport like soccer," said Hamm, who credits her late brother, Garrett, with letting her play with him and the boys.

"You learn how to be a team player, to deal with defeat, to win graciously," she said. "You learn leadership skills, and you learn how to handle criticism, how to take direction. Soccer is not only a physical game but there is also a large mental component. You have to know where to be on the field at the appropriate time and control the ball while running full speed all while having a full view of the field. It requires a lot of control.

"Every time you step on the soccer field, you can challenge yourself to achieve something greater than what you had achieved before, whether it's learning to pass with your nondominant foot or to not be afraid of heading the ball. Soccer allows you to feel accomplished within a team setting."

*Title IX is the law that prohibits sex discrimination in federally-funded education programs and activities.

Kick Around These Soccer Statistics!

- More than 80 percent of all soccer players are under age 18.
- The number of players aged 35 and older has grown by more than 30 percent since 1998.
- The number of female soccer players has jumped by 12.5 percent since 1998 to 8.4 million—representing nearly half (48 percent) of all participants.
- One-third of all U.S. children aged 6 to 11 played soccer at least once in 2000.
- In the past decade, there has been a 28 percent increase in female soccer participation in the U.S.—from 5.7 million in 1990 to 7.3 million in 1999. This market is expected to continue to grow as more girls play in city leagues and in high school and college.
- Soccer is the fifth most popular sport for children aged 6 to 17.

Please go on to the next page.

Mark your answers to questions 11 through 21 in the section marked "Reading—Session 1" in your Student Response Booklet.

11. In the first paragraph, the phrase "face of women's soccer" means that Mia Hamm is
    A. attractive.
    B. well-known.
    C. experienced.
    D. highly paid.

12. In paragraph 3, what does <u>acknowledged</u> mean?
    A. called
    B. remembered
    C. recorded
    D. recognized

13. According to the article, the Women's United Soccer Association was the result of the
    A. enactment of the Title IX legislation in 1972.
    B. appearance of Mia Hamm on the soccer scene.
    C. victory of the U.S. women's team in the World Cup in 1999.
    D. first participation of U.S. women in international competition.

14. Which sentence from the article serves as a transition between two main topics in the article?
    A. "Now acknowledged as the most recognized female soccer player in the world, Hamm owns the all-time international scoring record for women *and* men."
    B. "'The World Cup to me is like the Super Bowl to football players or the World Series to baseball players.'"
    C. "Inspired by the success of Hamm and her teammates, more than 20 million women worldwide now play soccer, according to a 2001 FIFA survey."
    D. "'You learn how to be a team player, to deal with defeat, to win graciously,' she said."

15. Which phrase **best** describes how the information is organized in paragraphs 8 through 12 of this article?
    A. by cause and effect
    B. in chronological order
    C. by comparison and contrast
    D. from least important to most important

Please go on to the next page.

16. The last four paragraphs of the article are **mostly** about

A. the competitive aspects of the sport of soccer.

B. the social lessons taught by the sport of soccer.

C. Mia Hamm's accomplishments within a team setting.

D. Mia Hamm's need to challenge herself in every game.

17. Which statement from the article is a fact?

A. "But no player shines brighter than Hamm."

B. "Inspired by the success of Hamm and her teammates, more than 20 million women worldwide now play soccer."

C. "The sport's worldwide appeal with women was evident in the popularity of the movie *Bend It Like Beckham*."

D. "Soccer is the fifth most popular sport for children aged 6 to 17."

18. The statistics included in "Kick Around These Soccer Statistics!" are **mostly** about

A. female participation in soccer.

B. the increasing popularity of soccer.

C. how younger children enjoy soccer.

D. the decline in the age of soccer players.

19. What does the phrase "kick around" mean in "Kick Around These Soccer Statistics"?

A. enjoy

B. debate

C. consider

D. memorize

20. Which source would provide the most current soccer statistics?

A. Internet

B. almanac

C. dictionary

D. encyclopedia

21. The information in this article would allow a reader of this article to recognize Mia in the photograph by

A. the style of her uniform.

B. her physical appearance.

C. the number on her uniform.

D. her aggressive playing style.

Please go on to the next page.

Write your answer to question 22 in the space provided for it in your Student Response Booklet.

22. Explain several reasons why soccer is an especially appealing sport to women. Use information from the article to support your answer.

Please STOP. Do not go on to the next page.

NO TEST MATERIAL
ON THIS PAGE

Reading
Session 2

This test session includes reading selections, multiple-choice questions, and a question for which you must write out your answer. After you read each selection, answer the questions about it in the spaces provided in your Student Response Booklet. You may not use a dictionary or any other reference tool during this session.

Read the application for employment at the Miles City Buckinghorse Bank and then answer the questions that follow.

Miles City Buckinghorse Bank

APPLICATION FOR EMPLOYMENT

We consider applicants for all positions without regard to race, color, religion, sex, national origin, age, marital or veteran status, handicap or disability, or any other legally protected status.

>>>>>>>>>PLEASE PRINT<<<<<<<<<

Position(s) Applied for	Date of Application

How did you learn about us?
☐ From an advertisement ☐ From a friend ☐ Walked in
☐ From an employment agency ☐ From a relative ☐ Other _____

Last Name	First Name	M.I.

Address number street	City	State	ZIP

Telephone Numbers Home Work	Social Security Number

Have you filed an application with us before?
☐ Yes ☐ No If Yes, please give date(s) _____

Are you willing to travel? ☐ Yes ☐ No

Do you have reliable transportation available? ☐ Yes ☐ No

Are you currently employed? ☐ Yes ☐ No

May we contact your present employer? ☐ Yes ☐ No

Are you prevented from lawfully becoming employed in this country because of Visa or Immigration Status?
(Proof of citizenship or immigration status will be required upon employment.) ☐ Yes ☐ No

On what date would you be available to begin employment with us if hired? _____

Are you available to work: ☐ Full Time ☐ Part Time ☐ Temporary

Have you been convicted of a felony within the last seven (7) years?
(Conviction will not necessarily disqualify an applicant from employment.)
☐ Yes ☐ No If Yes, please describe _____

_____

EDUCATION

	High School				Undergraduate				Graduate/Professional				Other
School Name and Location													
Years Completed	9	10	11	12	1	2	3	4	1	2	3	4	
Diploma/Degree Received													

We are an equal opportunity employer.

Please go on to the next page.

EMPLOYMENT EXPERIENCE

Start with your present or last job. Include any job-related military service assignments and volunteer activities.

Employer		Dates Employed	
		From	To
Address			
Telephone Numbers #1 #2		Hourly Rate/Salary	
		Starting	Final
Job Title	Supervisor		
Work Performed			
Reason for Leaving			
Employer		Dates Employed	
		From	To
Address			
Telephone Numbers #1 #2		Hourly Rate/Salary	
		Starting	Final
Job Title	Supervisor		
Work Performed			
Reason for Leaving			

REFERENCES

Give name, address, and telephone number of three references who are not related to you and are not previous employers.

Reference 1
Reference 2
Reference 3

ADDITIONAL INFORMATION

List any other education or job experience you believe would qualify you for the position for which you are applying.

In the event of employment, I understand that false or misleading information given in my application or interview(s) may result in discharge. I understand, also, that I am required to abide by all rules and regulations of the employer.

Date _____ Signature of Applicant _____

Please go on to the next page.

Mark your answers to questions 23 through 29 in the section marked "Reading—Session 2" in your Student Response Booklet.

23. What does the statement mean at the top of the first page?
    A. Applicants can only be judged by their qualifications.
    B. People with military experience have an advantage over other applicants.
    C. People who have no experience need not apply.
    D. The company cannot fire you without just cause.

24. What does the Miles City Buckinghorse Bank require of employees?
    A. job-related training in the military
    B. proof of citizenship or immigration status
    C. a clean criminal record
    D. a high school diploma

25. Why might an employer want to know an applicant's previous salary?
    A. to compare it with the salary the employer is offering
    B. to determine if the applicant is good with money
    C. to verify that the applicant is qualified for the job
    D. to see if the job is a good match

26. Where should an applicant list contact information for someone who thinks highly of the applicant?
    A. Education
    B. Employment Experience
    C. References
    D. Additional Information

27. The **best** person to list as a reference is
    A. an uncle.
    B. a former employer.
    C. a guidance counselor.
    D. a best friend.

28. Where should an applicant list any self-taught computer skills?
    A. Education
    B. Employment Experience
    C. References
    D. Additional Information

29. Where does the applicant oath appear?
    A. in the first box
    B. in the Education section
    C. in the References section
    D. at the end of the application

Please go on to the next page.

Read this selection about the relationship between a boy and his sister and then answer the questions that follow.

THE LOCKET

Gary Soto

I never liked jewelry. My sister Debra did. Twenty Bazooka comic strips and a dollar—after a three-week binge of reading teenage romances while waiting for the mailman—brought her a gold-plated locket, studded with plastic pearls and a fake diamond. I wanted her to choose the miniature binoculars because I helped her chew at least seven pieces of pink bubble gum and gave her a clean dime in exchange for our once-a-week pudding dessert. We were always selling desserts to each other. We were always short a dime or a quarter, and our only bargaining chip was dessert, especially the pudding Mother served in gold-rimmed goblets, the kind kings and queens used in Robin Hood movies.

I wanted Debra to choose the binoculars. My head was large, but my eyes were small as a cat's, maybe even smaller. I could look through both lenses with one eye, and what I wanted was a better look at our neighbor, a junior college student who swam in an aluminum-sided doughboy pool. She used a ladder to get in. . . . I could spy on her from behind our fence, the binoculars to my right eye because that one seemed to work better.

But Debra chose the locket. When it arrived in a business-size envelope, I waved it at her and said, "It's here." Angrily, she snatched it from me and took it to her room. I ate an afternoon bowl of Cocoa Puffs and watched a movie about giant ants no flame thrower could stop. I looked at her bedroom door now and then, wondering what was going on. Later, just before the ants got fried with a laser, she came out stinking of perfume, the locket around her brown neck. She didn't look at me as she went out the front door and crossed the street to see her friend, Jill.

My sister was eleven. She still clacked the plastic faces of Barbie and Ken together, made them hug, made them cry and run back to each other, stiff arms extended, faces wet with pretend tears from the bathroom sink. But she and Jill played with them less and less. Now they were going for the real thing: boys with washed faces.

In spite of the plastic pearls and the chip of glass centered in the middle, the locket made her look grown-up. I didn't tease her, and she didn't tease me about wearing rummage-sale baseball cleats.

All summer Debra wore the locket, and Jill wore one, too, an expensive one her mother had bought at Penney's. But Debra didn't care. She loved the locket whose metal chain left her neck green. Mother admired the locket, said it made her look elegant. That summer, Debra began to complain less and less about doing the dishes.

When a pearl fell out, she glued it back in. Another lost its grip and rolled into the floor furnace. She vacuumed the furnace of its ghostly lint, and shook out the bag and ran her fingers through the stinking hair, lint, broken potato chips, Cocoa Puffs, Cheerios, staples, bits of Kleenex, dead ants, and blue, flowery marble. She searched through the debris until, miraculously, she found the tiny pearl. She glued it back into place and gave her locket a rest.

One day, while Debra was at the playground swimming, I snuck into her bedroom to peek in the locket because I knew she kept something in the

Please go on to the next page.

frame. She was always snapping it open and closed, always feeling pretty happy when she looked down. . . . When I opened it, slowly because the clasp looked fragile, I saw a face that was mostly an eyeball looking at me. I stared back at the eyeball, and after a moment realized that it was Paul of the Beatles. It was Paul's eyeball, a bit droopy, a bit sad like his songs. Paul was favored by the girls who rode their bikes up and down the block singing "Michelle, ma belle."

A few days later I checked the locket again. Paul's eyeball was gone, and now I was staring at a smiling Herman and the Hermits. Herman looked happy. His hair was long and soft, and his teeth were large and charmingly crooked. I smiled wide and thought for a moment that I looked like Herman. A few days later it was back to Paul in a new picture that she had cut out of a magazine. I thumbed through the magazine, emptied of all the famous pop stars, and looked around the room. Almost everything was pink. The furry rug, the canopy bed, the bottles of perfume and nail polish, the much-hugged pillow, everything except the chest of drawers which she intended to paint by fall. I left in a hurry when I heard Debra's bike skid to a halt in the driveway.

All summer it was Paul's eyeball, Herman's teeth, and one time Paul Revere with his colonial hat. Debra began to polish her nails and walk more slowly, erect as a ladder. By fall, the chest of drawers was pink and Mother was no longer worried about the green around her neck where the chain rested — an allergic reaction to cheap metal. Debra no longer wore the locket. She was saving Bazooka comics for a camera that came with a free roll of film. She had her first boyfriend and wanted to take his picture on the sly, wanted more than a droopy eyeball or toothy smile. She wanted the entire face, and some of the neck.

Mark your answers to questions 30 through 37 in the section marked "Reading—Session 2" in your Student Response Booklet.

30. The narrator of the selection is **most likely**
    A. close in age to Debra.
    B. much older than Debra.
    C. much younger than Debra.
    D. the same age as Debra.

31. Based on details from the selection, which statement is **most likely** true about the narrator's family?
    A. They live in a wealthy suburb.
    B. The mother works outside the home.
    C. They have a moderate income.
    D. The children have few friends.

Please go on to the next page.

32. What is the narrator's reaction to the changes in his sister?

A. observant and intrigued
B. understanding and saddened
C. withdrawn and confused
D. jealous and possessive

33. The narrator **most** wants the reader to understand that the locket was

A. something his sister would always cherish.
B. too cheap for his sister.
C. more significant than he first thought.
D. a reminder of his sister's weaknesses.

34. Which paragraph suggests the **most** significant turning point for Debra?

A. paragraph 4
B. paragraph 6
C. paragraph 8
D. paragraph 10

35. Why does Debra eventually stop wearing the locket?

A. She is allergic to the chain.
B. Her mother makes her.
C. She is no longer interested in it.
D. It is too grown-up looking.

36. What does the locket symbolize in the selection?

A. a retreat back to childhood innocence
B. the transition from childhood to adolescence
C. the need for privacy and solitude
D. the separation of sister and brother

37. Over which period of time does the selection take place?

A. one month
B. a few months
C. one year
D. a few years

Please go on to the next page.

Reading
Session 3

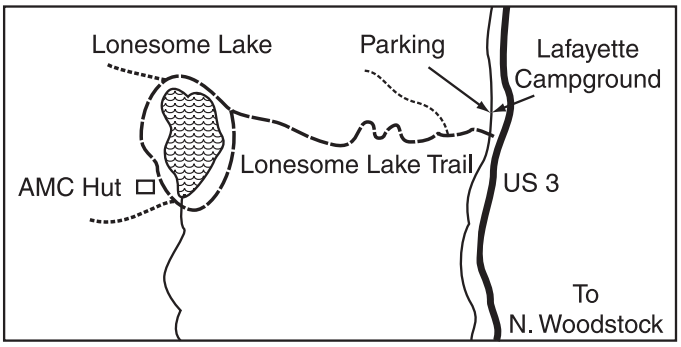
This test session includes reading selections, multiple-choice questions, and a question for which you must write out your answer. After you read each selection, answer the questions about it in the spaces provided in your Student Response Booklet. You may not use a dictionary or any other reference tool during this session.

Read this passage from a book about hiking in the White Mountains and then answer the questions that follow.

Lonesome Lake

Daniel Doan

Distance (round trip): 3 ¼ miles.
Walking time: 2 ¾ hours.
Vertical rise: 1,000 feet.



One thousand feet above Franconia Notch is Lonesome Lake, a goal for climbers and visitors who take advantage of the graded trail to walk in and see a true mountain lake in a spectacular setting. No longer "lonesome," quite the opposite, the much-used trails, along with the plywood hut of the AMC,* and the voices of hikers with their colorful packs and clothes, give a modern touch to the ancient scenery.

The lake has been popular since the days of mountain inns after the Civil War. The trail still follows the old bridle path, along which many vacationers from the now-vanished hotels rode to the lake for the magnificent views of the mountains on both sides of the Notch.

Legend names President Ulysses S. Grant as one of the notable visitors. According to the story, he came to the Notch and the Profile House in 1869. A yellow coach and six bay horses driven by Ed Cox, a famous "whip," brought him from Bethlehem in fifty-five minutes—a fantastic rate of more than thirteen miles an hour. In later years, a steam train and rails brought guests to the Profile House, which burned in August 1923.

The views from Lonesome Lake are, indeed, great—comprehensive, craggy, wild, and dominated by the treeless peak of Mount Lafayette. From the lake, trails lead to Cannon Mountain, Mount Kinsman, and Kinsman Pond. The Appalachian Trail passes by the lower end of the lake.

As many as forty-six hikers can be accommodated at the AMC's Lonesome Lake Hut, situated on the west shore facing the Franconia Range. There is a trail around the lake, ¾ mile, passing the site of old log cabins. A stand of tamarack makes a fine display of yellow in the fall. The lake is 2,734 feet above sea level. Westward, the evergreen forest rises to the ledges of Mount Kinsman.

Park at Lafayette Place. This is a clearing, picnic area, and campground between the Profile and the
6 Flume on the west side of US 3. When you leave your car, pause and walk around until you can see the best view of the cliffs of Cannon Mountain.

The Lonesome Lake Trail will be found by walking beyond the picnic area. Near the south end is a stream that's already called by its full name,
7 Pemigewasset River. Cross this on the footbridge. Walk through the campground following yellow trail blazes to the entrance into the woods. Very shortly, the trail begins the series of graded switchbacks up the steep slope.

*AMC: Appalachian Mountain Club

Please go on to the next page.

You surmount most of the 1,000 feet to the lake in the ridge's first ½ mile. You work your way upward by the switchbacks originally designed for horses and riders, but now equally useful to hikers. Pass by the Hi-Cannon Trail on the right. The
8 Lonesome Lake Trail continues to climb. The ridge, which looked so easy from Lafayette Place, seems to have deceived you. But the trail soon begins to level out, and after about 1 mile, you detect a slight descent. The lake is ahead in its flat wooded setting. You come to a trail junction.

To reach the AMC Hut, take the Cascade Brook Trail, which branches left from the Lonesome Lake Trail. Follow along the east shore of the lake until
9 you come to another trail junction at the lake's south end. Turn right on the Fishin' Jimmy Trail across the outlet, and take the left fork to the AMC Hut.

For the return route, walk the Around-Lonesome-Lake Trail on the west shore to a junction with the
10 Lonesome Lake Trail north of the lake. Turn right. Keep past the Cascade Brook Trail, and you are on the way back down to Lafayette Place.

Mark your answers to questions 51 through 55 in the section marked "Reading—Session 3" in your Student Response Booklet.

51. In paragraph 8, what does surmount mean?
    A. climb
    B. cover
    C. observe
    D. follow

52. Switchbacks originally were used to
    A. make the climb easier for hikers.
    B. install a small steam railway to an inn.
    C. make the trail easier for horses and riders.
    D. prevent erosion on the steep slope.

53. Which phrase **best** describes how the information is organized in paragraphs 6 through 10?
    A. by cause and effect
    B. in chronological order
    C. by comparison and contrast
    D. from least important to most important

54. Based on the map, why are hikers told to turn left at the trail junction to reach the AMC hut?
    A. It is the only way to the hut.
    B. The right branch is too difficult.
    C. It is the most direct way to the hut.
    D. The right branch does not go to the hut.

55. The author **most likely** recommends a different route back from the AMC hut so hikers can
    A. return on an easier trail.
    B. have a picnic at a picnic area.
    C. see different views of Lonesome Lake.
    D. follow along the Pemigewasset River.

Please go on to the next page.

This poem is from Carver: A Life in Poems. *The poems in this book tell about the life of George Washington Carver, a man who was born into slavery but achieved his freedom and went on to earn a college degree. For most of his life, Carver was the director of the department of agricultural research at Tuskegee Institute, where he taught and conducted research that brought him international fame. Read the poem and then answer the questions that follow.*

Chemistry 101

A canvas apron over his street clothes,
Carver leads his chemistry class into
the college dump. The students follow, a claque
of ducklings hatched by hens. Where he
5 sees a retort, a Bunsen burner,
a mortar, zinc sulfate, they see
a broken bowl, a broken lantern,
a rusty old flatiron, a fruit jar top.
Their tangle of twine, his lace.
10 He turns, a six-inch length of copper tubing
in one hand. "Now, what can we do with this?"
Two by two, little lights go on.
One by hesitant one, dark hands are raised.
The waters of imagining, their element.

—Marilyn Nelson

George Washington Carver with students in his laboratory at Tuskegee Institute

Please go on to the next page.

Mark your answers to questions 56 through 60 in the section marked "Reading—Session 3" in your Student Response Booklet.

56. In lines 3 and 4, the comparison of Carver's students to "a claque of ducklings" helps to emphasize the students'
    A. ambition.
    B. boredom.
    C. independence.
    D. inexperience.

57. Which words from the poem show the contrast between Carver and his students?
    A. "a broken bowl, a broken lantern,"
    B. "Their tangle of twine, his lace."
    C. "He turns, a six-inch length of copper tubing / in one hand."
    D. "Two by two, little lights go on."

58. What is Carver teaching his students in this poem?
    A. how to plan chemistry experiments
    B. how to identify the chemical elements
    C. how to use their imaginations
    D. how to ask good questions

59. Based on this poem, what was **most likely** true about Carver?
    A. He felt defeated by the poverty he encountered.
    B. He was uncomfortable in a college environment.
    C. He taught others how to survive in a challenging environment.
    D. He preferred conducting scientific research to teaching others.

60. Which word **best** describes Carver's behavior in this poem?
    A. resourceful
    B. impatient
    C. careful
    D. worried

Please go on to the next page.

This passage is from the book Woodsong*, an account of author Gary Paulsen's life in northern Minnesota. In this passage, Paulsen tells about an adventure he has when training a group of young sled dogs. Read the passage and then answer the questions that follow.*

Fire

Gary Paulsen

The adventure really begins in differences—the great differences between people and animals, between the way we live now and the way we once lived, between the Mall and the Woods.

Primarily the difference between people and animals is that people use fire. People create fire, and animals don't. Oh, there are minor things—like
2 cars and planes and all the other inventions we seem to have come up with. But in a wild state, the real difference is that we use controlled fire.

3 And it was in the business of fire that I came to the first of many amazements inside the woods.

4 It started with a campfire.

I was on a hundred-mile run in deep winter with new dogs—pups, really, just over a year old. I had gone beyond the trapping stage and was training new dogs for a possible attempt on the Iditarod.* The pups had lived in kennels, mostly. They had only been on short training runs so that almost everything they saw on this run was new to them. They had to learn to understand as they ran.

A cow in a field was a marvel and had to be investigated; it took me half an hour to get untangled from the fence. A ruffed grouse that flew
6 down the trail ahead of us had to be chased. A red squirrel took the whole team off the trail into the woods, piling into deep drifts and leaving us all upside down and packed with snow.

It was, in short, a day full of wonders for them and when night came and it was time to stop—you can really only do about twenty miles a day with young dogs—we found a soft little clearing in the spruce trees. I made beds for them and when they were fed and settled, or as settled as young dogs can get, I made a fire hole in the snow in the center of the clearing, next to the sled, and started a small fire with some dead popple. It was not a cold night so the fire was very small, just enough to melt some snow and make tea. The flames didn't get over a foot high—but the effect was immediate and dramatic.

The dogs went crazy with fear. They lunged against their chains, slamming and screaming. I went to them and petted them and soothed them and
8 at length they accepted the fire. I put their frozen blocks of meat around the edges of the flames to soften, and fed them warm meat. Then they sat and stared at the flames, the whole ring of them.

Of course they had never seen fire, or flame, in the kennel—it was all completely new to them. But the mystery was why they would automatically fear it. They had seen many new things that day, and they didn't fear anything but the fire.

And when they were over the fear of it, they were fascinated with it. I stretched my foam pad and sleeping bag out in the sled to settle in for the night. This is a complicated process. The felt liners for my shoepacs had to be taken off and put down inside the bag so my body heat could dry them for the next day. My parka had to be turned inside out so all the sweat from the day could freeze and be scraped off in the morning. Any wet clothing had to be flattened and worked down into the bag to dry as well. While I was doing all this in the light from my head lamp, I let the fire die down.

Just as I started to slide into the bag one of the dogs started to sing. It was the sad song.

*Iditarod: a sled dog race held annually in Alaska

Please go on to the next page.

They have many songs and I don't know them all. There is a happy song they sing when the moon is full on the snow and they are fed and there is a rain song, which is melancholy—they don't like rain very much—and there is a song they sing when you have been with them in the kennel and start to walk away, a come-back-and-don't-go-away sad song.

That was the song one dog had started to sing. When I turned to look at him he was staring where the fire had died down into a cup in the snow, and in a moment the rest of them had picked up the song and were wailing and moaning for the lost fire, all staring where the flames had been.

In an hour they had gone from some coded, genetic fear of fire, to understanding fire, to missing it when it went away.

Cave people must have gone through this same process. I wondered how long it had taken us to understand and know fire. The pups had done it in an hour and I thought as I pulled the mummy bag up over my head and went to sleep how smart they were or perhaps how smart we weren't and thought we were.

Mark your answers to questions 61 through 71 in the section marked "Reading—Session 3" in your Student Response Booklet.

61. The **main** purpose of the first two paragraphs is to

    A. suggest that many human inventions are minor.
    B. explain how humans lived before they learned to use fire.
    C. introduce the idea that humans use fire and animals do not.
    D. discuss how humans have invented things throughout history.

Use the dictionary entry below to answer question 62.

> **business** *n* **1.** one's occupation, trade, or profession: *She was in the retail clothing business and owned her own store*. **2.** volume of buying or selling: *Business was bad at the store*. **3.** matter, affair: *He was tired of the whole silly business*. **4.** company or organization providing goods or services: *The shoe business moved one block away*.

62. In paragraph 3, which meaning of <u>business</u> is used?

    A. definition 1
    B. definition 2
    C. definition 3
    D. definition 4

Please go on to the next page.

63. What is the **most likely** reason the author uses a separate paragraph for the sentence "It started with a campfire"?

A. to describe the setting of the passage
B. to introduce the theme of the passage
C. to summarize the first three paragraphs about fire
D. to emphasize the important role of the fire in the story

64. In which paragraph does a memory begin?

A. paragraph 2
B. paragraph 4
C. paragraph 6
D. paragraph 8

65. In paragraph 6, what does <u>marvel</u> mean?

A. friend
B. threat
C. problem
D. wonder

66. Which factor **most** helps the dogs to overcome their fear of the fire?

A. their curiosity about the world
B. their trust in the narrator
C. their need for warmth
D. their love of light

67. According to the narrator, why do the dogs begin to sing when the fire disappears?

A. They miss the fire.
B. They fear the dark.
C. The fire had been beautiful.
D. The fire had been threatening.

68. The turning point, or climax, in the narrator's experience occurs when the dogs

A. overturn the sled in deep snow.
B. get excited when the fire is started.
C. eat the meat warmed by the fire.
D. begin to sing the sad song.

Please go on to the next page.

69. Which word **best** describes the narrator's attitude toward his dogs at the end of the passage?

A. amused
B. impressed
C. protective
D. confused

70. Which statement from the passage is **best** classified as an opinion?

A. "People create fire, and animals don't."
B. "And it was in the business of fire that I came to the first of many amazements inside the woods."
C. "They have many songs and I don't know them all."
D. "Cave people must have gone through this same process."

71. Which word **best** describes the author's tone in this passage?

A. reflective
B. humorous
C. regretful
D. uncertain

Write your answer to question 72 in the space provided for it in your Student Response Booklet.

72. Explain the three stages the dogs went through in their first experience with fire. Support your answer with informsation from the passage.

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Mathematics
Session 1 (Calculator)

This test session includes multiple-choice questions and a question for which you must show your work or write out your answer. You may use a calculator during this session.

Mark your answers to questions 1 through 24 in the section marked "Mathematics—Session 1 (Calculator)" in your Student Response Booklet.

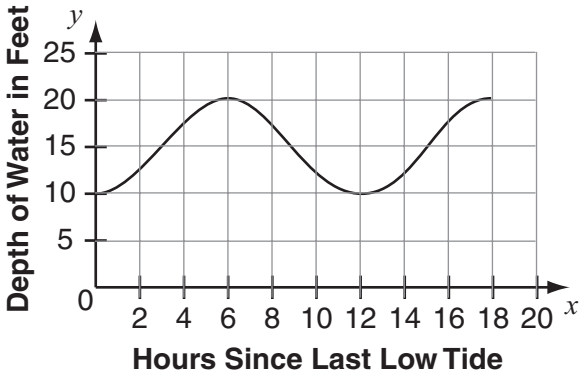
1. Amanda wants to find her route on a map with this scale: 0.5 inch = 9 miles. Amanda measures her route on the map and finds that it is 6 inches. How long is her actual route?

   A. 108 miles
   B. 57 miles
   C. 11 miles
   D. 3 miles

2. A weather forecaster is predicting a snowstorm. If a previous storm left 4 inches of snow on the ground and the new snow falls at a rate of 0.5 inch per hour, which function relates depth of snow, s, in inches, to time, t, in hours, after the new storm begins?

   A. $s = 0.5(t + 4)$
   B. $s = 0.5t + 4$
   C. $s = 4t + 0.5$
   D. $s = 4(t + 0.5)$

3. The graph below shows the depth of water, y, at a harbor on the Atlantic Ocean as a function of time, measured in the number of hours, x, since the last low tide.



   Based on the graph, during which entire interval is the water level decreasing?

   A. between 1 and 4 hours
   B. between 4 and 7 hours
   C. between 7 and 10 hours
   D. between 10 and 13 hours

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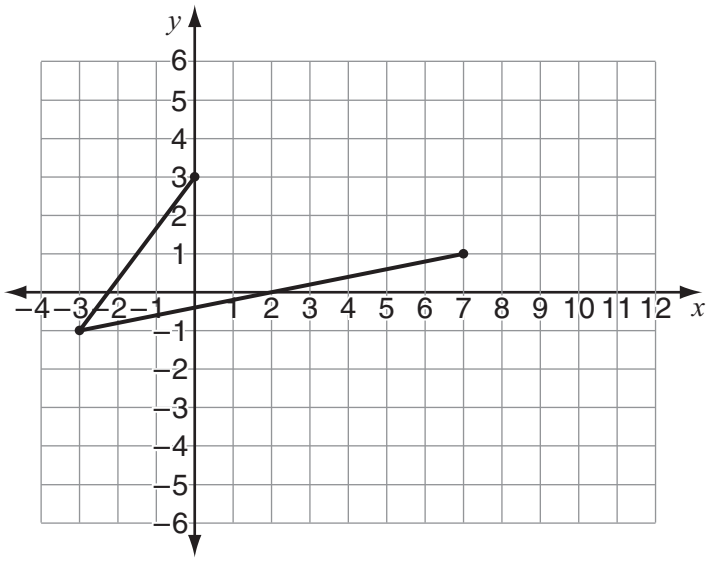
4. Three vertices and two sides of a parallelogram are shown on the coordinate grid below.



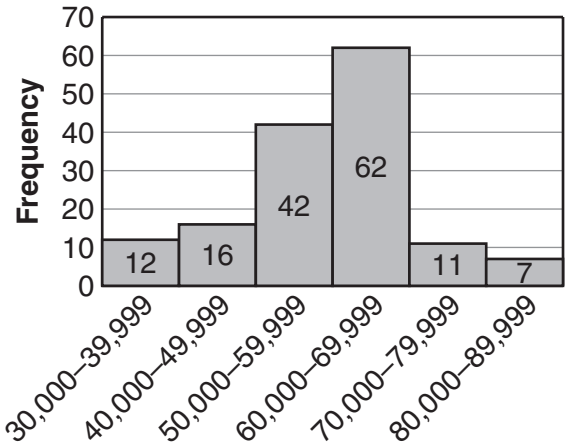
What are the coordinates of the fourth vertex?

A. (8, 4)
B. (9, 5)
C. (9, 4)
D. (10, 5)

5. A student is preparing a chart to show the percent of athletes at school who play different fall sports. If each athlete plays only one sport, what is the most appropriate way to display this information?

A. circle graph
B. line graph
C. scatterplot
D. box-and-whisker plot

6. Advertisements for the Roadhugger tire claim that it will last at least 60,000 miles before wearing out. To test these claims, researchers collected a random sample of 150 tires and recorded their wear. The histogram below displays the distance traveled by each tire before wearing out.



Mileage Until Tire Wears Out

Based on the data in this histogram, which of the following is the best estimate of the probability that a randomly selected Roadhugger tire wears out **before** 60,000 miles?

A. $\frac{35}{80}$

B. $\frac{70}{80}$

C. $\frac{42}{150}$

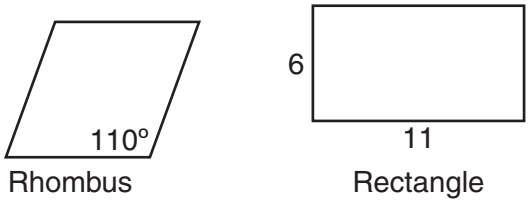
D. $\frac{70}{150}$

Please go on to the next page.

7. A driver for a delivery service earns \$9 per hour and is expected to deliver at least 12 packages a day. The driver earns an additional \$2 for each package delivered beyond the required 12. Which equation can be solved to determine the number of packages, x, the driver must deliver to earn \$100 in an 8-hour workday?

A. $72 + 8(x - 12) = 100$
B. $72 + 2(12 - x) = 100$
C. $72 + 8(12 - x) = 100$
D. $72 + 2(x - 12) = 100$

8. A rhombus and a rectangle are shown below.



Which property is true for the rhombus but not true for the rectangle?

A. Opposite angles are congruent.
B. Opposite angles are supplementary.
C. Diagonals are congruent.
D. Diagonals are perpendicular.

9. Instructions for a model rocket state that the height, h, of the rocket in feet above ground t seconds after launch is given by the equation below.

$$h = 200t - 16t^2$$

How high above the ground is the rocket expected to be 2 seconds after launch?

A. 136 feet
B. 336 feet
C. 368 feet
D. 464 feet

10. Luis wants to buy a new shirt. The regular price of the shirt he wants to buy is \$15.99. The shirt is on sale for 30% off the regular price. What is the sale price of the shirt?

A. \$11.19
B. \$10.66
C. \$ 5.33
D. \$ 4.50

11. A school ordered a new fish tank shaped like a rectangular prism. It has the same depth as the old fish tank, which was also shaped like a rectangular prism. The new fish tank is twice as long and twice as wide as the old fish tank. About how much more water will be needed to fill the new tank than was needed to fill the old tank?

A. twice as much
B. four times as much
C. six times as much
D. eight times as much

Please go on to the next page.

12. Nine countries have won the Men's or Women's Soccer World Cup championship in the combined 20 times these events have been held. Below is a chart that shows these countries and how many times each has won.

Country	Number of Championships
Brazil	5
Germany	3
Italy	3
Argentina	2
Uruguay	2
United States	2
England	1
France	1
Norway	1

If a circle graph shows the relative number of championships that each country has won, which of the following would be the measure of the central angle of the sector representing Brazil?

A. 5 degrees
B. 25 degrees
C. 55 degrees
D. 90 degrees

13. The chart below shows the cost to mail a package first-class by the U.S. Postal Service.

Weight in Ounces	Cost in Dollars
1	$0.37
2	$0.60
3	$0.83
4	$1.06
5	$1.29
6	$1.52
7	$1.75

Based on the pattern in this chart, what is the charge to send a 14-ounce package using first-class mail?

A. $1.98
B. $2.12
C. $3.36
D. $3.50

14. Jada ran a quarter-mile race in 1 minute. What was her average speed in miles per hour?

A. 1
B. 4
C. 15
D. 25

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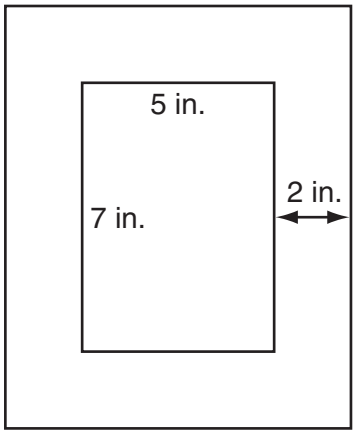
15. A rectangular picture 5 inches wide and 7 inches long is in a frame that is 2 inches wide.



What is the area of the frame?

A. 28 square inches
B. 35 square inches
C. 64 square inches
D. 99 square inches

16. According to a recent random survey taken by a major automobile manufacturer of 22,000 of its customers, the probability that a customer is satisfied with his or her car is $\frac{4}{5}$. If the manufacturer sells 850,000 new cars in a year, about how many customers could be expected to be satisfied with their vehicle?

A. 662,400
B. 680,000
C. 828,000
D. 1,062,500

17. With each meal at the Old Bay restaurant, a customer chooses two side dishes. The table below lists side dishes that are served at the restaurant.

Side Dishes

Baked potato
Coleslaw
Baked beans
Potato salad
House salad
Creamed corn

In how many different ways can a customer choose two different side dishes?

A. 12
B. 15
C. 30
D. 36

18. Which expression is always a positive value for any two different real numbers x and y?

A. $x + y$
B. $x - y$
C. $(x + y)^3$
D. $(x - y)^2$

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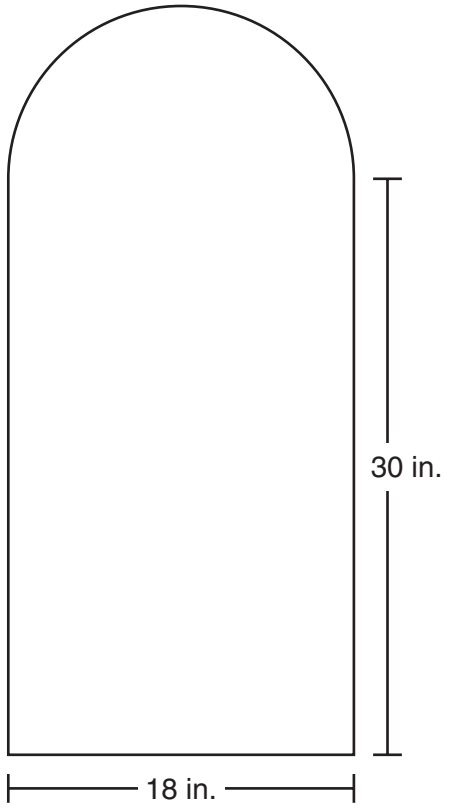
19. A window has a rectangular bottom and a semicircle top. The dimensions of the window are shown in the diagram below.



What is the approximate area of the window?

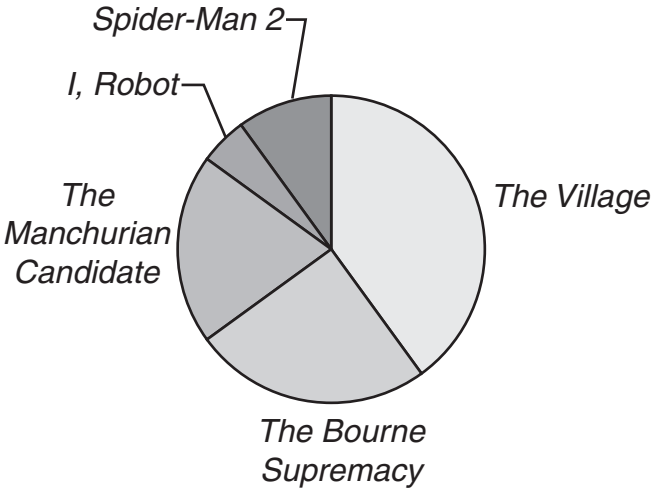
A. 540 square inches
B. 629 square inches
C. 667 square inches
D. 794 square inches

20. After a transformation, the image of a polygon is similar to the original but not congruent to it. What kind of transformation was applied to the polygon?

A. dilation
B. reflection
C. rotation
D. translation

21. The circle graph below shows how much money five movies earned from the total movie ticket sales for one week.

Movie Ticket Sales



If a total of $50,000,000 was spent on movie tickets for *The Village* during the week, which of the following is the best estimate of the **total** ticket sales for the week?

A. $ 70,000,000
B. $ 90,000,000
C. $120,000,000
D. $200,000,000

Please go on to the next page.

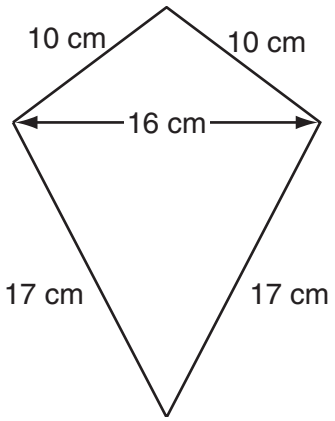
22. The chart below shows the heights of the 30 girls on the intramural basketball teams.

Height to Nearest Inch	Number of Girls
63	2
64	3
65	4
66	6
67	5
68	3
69	3
70	2
71	1
72	1

What is the median height of the players?

A. 66 inches
B. 66.5 inches
C. 67 inches
D. 67.5 inches

23. Mina is designing a kite for a competition. She begins with the scale drawing shown below.



Mina plans to decorate the outer edge of the kite with tape. If her actual kite is 96 cm wide, how much tape will she need?

A. 324 cm
B. 162 cm
C. 96 cm
D. 54 cm

24. A baseball player hit 8 home runs in the first 27 games of a season. If he continues to hit home runs at this rate, how many will he hit during the entire 162-game season?

A. 40
B. 48
C. 143
D. 547

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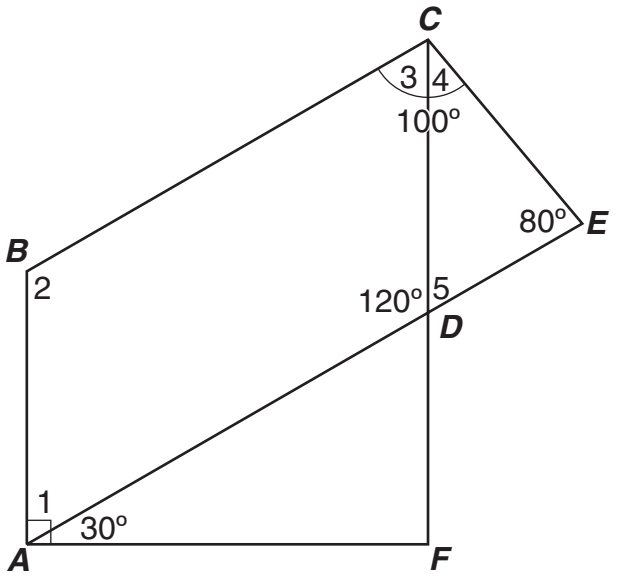
Write your answer to question 25 in the space provided for it in your Student Response Booklet. Show all of your work.

25. Look at the figure below.



a. What is the measure of $\angle 1$? Justify your answer geometrically.

b. What is the measure of $\angle 3$? Justify your answer geometrically.

c. Justify geometrically that quadrilateral $ABCD$ is a parallelogram.

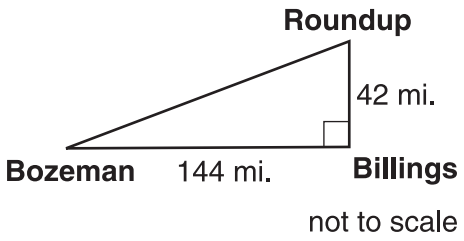
Please STOP. Do not go on to the next page.

Mathematics
Session 2A (Calculator)

This test session includes multiple-choice questions and a question for which you must show your work or write out your answer. You may use a calculator during this session.

Mark your answers to questions 26 through 35 in the section marked "Mathematics—Session 2A (Calculator)" in your Student Response Booklet.

Use the map below to answer question 26.



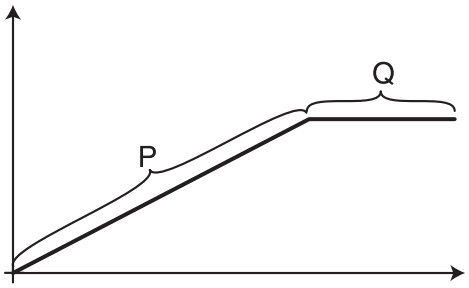
26. When Ms. Fels flies from Bozeman to Roundup, she usually stops in Billings. If the flight path from Bozeman to Billings is perpendicular to the flight path from Billings to Roundup, how many travel miles would Ms. Fels save by flying directly from Bozeman to Roundup?

    A. 6 miles
    B. 12 miles
    C. 36 miles
    D. 42 miles

27. Lilly and Janelle are playing a game of chess. There is a 15% probability that the game will end in a tie. If j represents the probability that Janelle will win the game, which expression represents the probability that Lilly will win the game?

    A. $0.85 - j$
    B. $j - 0.15$
    C. $1 - j$
    D. $1 - 0.15j$

Use the graph below to answer question 28.



28. Which of the following is most likely the slope of the portion of the graph labeled Q?

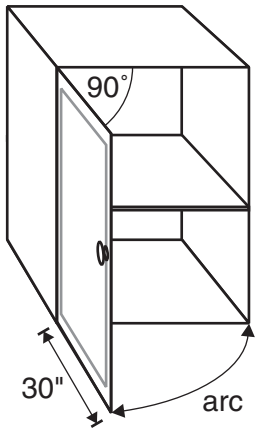
    A. 0
    B. 0.9
    C. 1
    D. undefined

Please go on to the next page.

29. Bill and Larry each began saving their money w weeks ago. Bill started with \$20 and has been saving \$4 a week. Larry had \$32 and began saving \$2 a week. After how many weeks do Bill and Larry have the same amount of money?

A. 12 weeks
B. 10 weeks
C. 6 weeks
D. 2 weeks

30. The door of the cabinet shown below can open to a maximum angle of 90°.



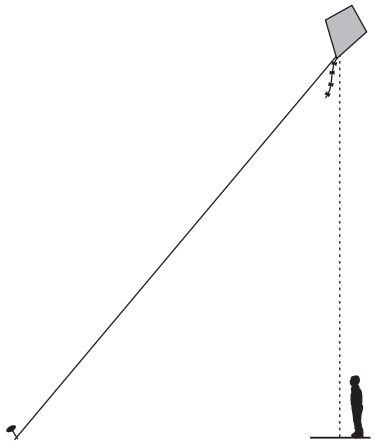
What is the length of the arc through which the door swings?

A. 23.6 inches
B. 47.1 inches
C. 62.8 inches
D. 78.5 inches

31. Sam has been practicing for a race. He computes the line of best fit for his practice data to be $t = -1.27n + 34.18$ where t is the time spent to complete the nth practice run. Using the equation, what is the first practice run that would result in a time of less than 22 minutes?

A. 7th run
B. 8th run
C. 9th run
D. 10th run

32. Kelly was flying a kite. She let out 60 feet of string and then staked the kite into the ground. Her friend Kyle is standing 40 feet from the stake and is looking directly up at the kite.



not to scale

About how high above Kyle's position on the ground is the kite flying?

A. 20 feet
B. 45 feet
C. 50 feet
D. 72 feet

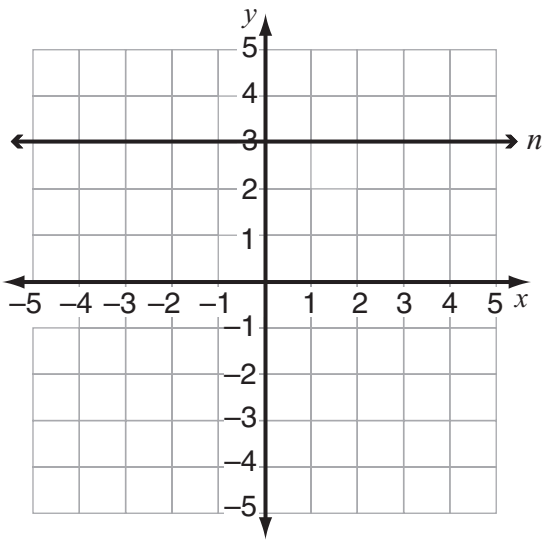
Please go on to the next page.

Mathematics
Session 2B (No Calculator)

This test session includes multiple-choice questions and questions for which you must show your work or write out your answer. You may NOT use a calculator during this session.

Mark your answers to questions 37 through 46 in the section marked "Mathematics—Session 2B (No Calculator)" in your Student Response Booklet.

Use the graph below to answer question 37.



37. Which function would produce the graph of line n?

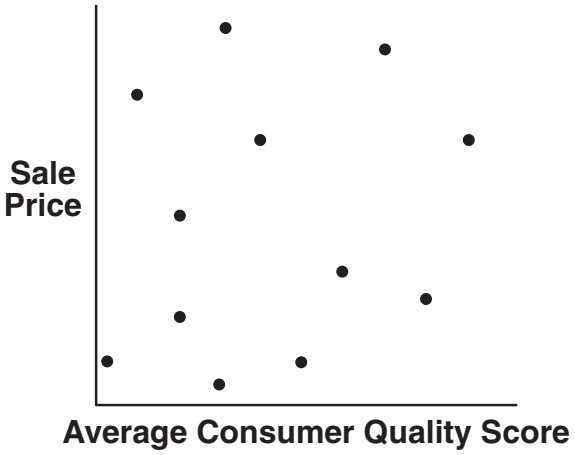
A. $x = 3$

B. $y = 3$

C. $y = x$

D. $y = x + 3$

38. Bette gathered data about the average consumer quality score of several television sets and their sale prices. She used the data to create this scatter plot.



Which conclusion can be reached from the plot?

A. As the average consumer quality score increases, the sale price increases.

B. As the average consumer quality score increases, the sale price decreases.

C. The sale price is constant at every income level.

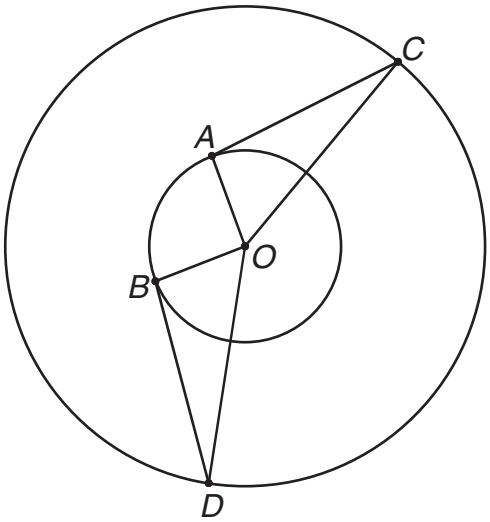
D. There is no relationship between the average consumer quality score and the sale price of televisions.

Please go on to the next page.

39. Personalized napkins are sold in packages of 8. Patty is inviting 125 people to an event and wants each person at the event to have at least one napkin. Let p represent the number of packages of napkins Patty buys. Which inequality best models this situation?

A. $8p \geq 125$
B. $8p \leq 125$
C. $p \geq 125$
D. $p \leq 125$

40. The circles in the figure below are concentric with center O.



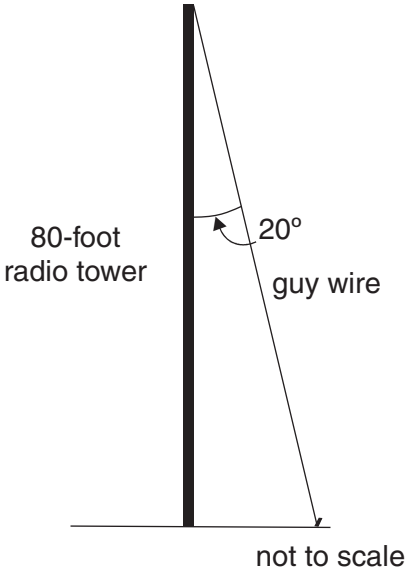
If $\angle AOC \cong \angle BOD$, which congruence theorem justifies that $\Delta AOC \cong \Delta BOD$?

A. Angle-Angle-Side (AAS)
B. Angle-Side-Angle (ASA)
C. Side-Angle-Side (SAS)
D. Side-Side-Side (SSS)

41. At the end of the year 2000, there were 4315 Burger Land stores. The company is expanding its business at a rate of 62 new stores per year. How many Burger Land stores will there be n years after 2000?

A. $4315 + 62n$
B. $4315 - 62n$
C. $4315 + (62n - 2000)$
D. $4315 + 62(n - 2000)$

42. Engineers are attaching a guy wire to the top of an 80-foot radio tower. The guy wire should make a 20° angle with a vertical line through the top of the tower, as shown below.



Which equation could be solved to find the final length, x, in feet, of the guy wire?

A. $\sin 20° = \frac{80}{x}$
B. $\cos 20° = \frac{80}{x}$
C. $\sin 20° = \frac{x}{80}$
D. $\cos 20° = \frac{x}{80}$

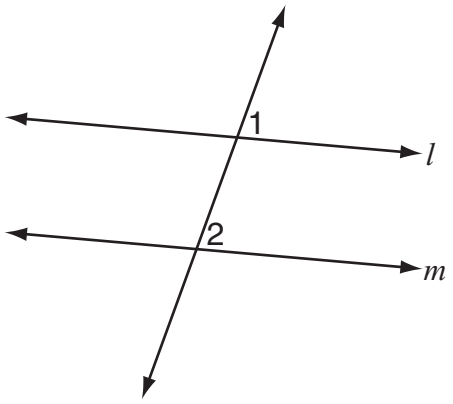
Please go on to the next page.

Mathematics
Session 3 (No Calculator)

This test session includes multiple-choice questions and questions for which you must show your work or write out your answer. You may NOT use a calculator during this session.

Mark your answers to questions 49 through 69 in the section marked "Mathematics—Session 3 (No Calculator)" in your Student Response Booklet.

49. In the diagram below, lines l and m are parallel.



Which theorem on its own justifies the statement $\angle 1 \cong \angle 2$?

A. Vertical angles are congruent.
B. Opposite angles of a parallelogram are congruent.
C. When two parallel lines are cut by a transversal, corresponding angles are congruent.
D. When two parallel lines are cut by a transversal, alternate interior angles are congruent.

50. Scientists consider water unsafe if it contains more than 1.5×10^{-5} gram of lead per liter. How is this number written in standard form?

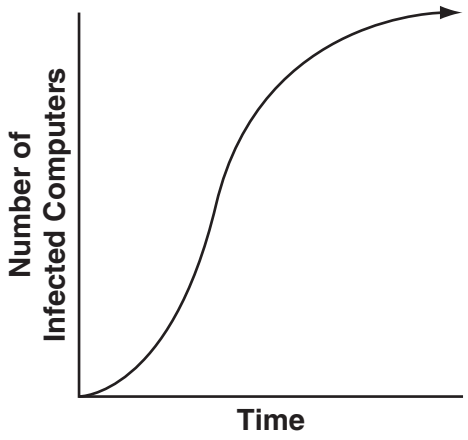
A. 0.0000015
B. 0.000015
C. 0.00015
D. 0.0015

51. Which number is rational?

A. π
B. $\frac{\pi}{2}$
C. $\sqrt{21}$
D. $\sqrt{25}$

Please go on to the next page.

52. The graph below shows the number of computers infected with a virus at one company over time.



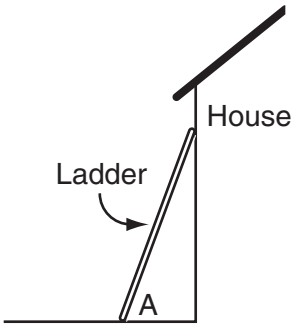
Which statement is true about the function that relates number of infected computers to time?

A. It is linear with a positive slope.
B. It is linear with a negative slope.
C. It is nonlinear and always increasing.
D. It is nonlinear and always decreasing.

53. A journalist is researching customer satisfaction among car owners. He decides to survey a random selection of car owners. Which of the following is the best method of getting a random selection of car owners?

A. wait outside a new car dealership and survey new owners
B. get a list of customers from a local mechanic
C. put an ad in the car section of the newspaper requesting participants
D. get a list of car owners from the state department of motor vehicles

Use the picture below to answer question 54.



54. The instructions for a painter's ladder indicate the following: For the ladder to be at the proper angle with the ground, the distance from the bottom of the wall to the bottom of the ladder should be one-fourth the length of the ladder. Which equation could be solved to find the measure of the angle that the ladder should make with the ground?

A. $\cos A = 4$

B. $\cos A = \frac{1}{4}$

C. $\sin A = 4$

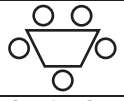
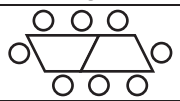
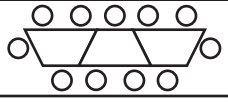
D. $\sin A = \frac{1}{4}$

55. Since 1994, the Winter Olympics have been held in even-numbered years that are **not** divisible by 4. If this pattern continues, in which of the following years will a Winter Olympics be held?

A. 2015
B. 2020
C. 2034
D. 2040

Please go on to the next page.

56. A restaurant uses tables shaped like trapezoids. The chart below shows the number of people that can be seated when 1, 2, and 3 tables are put together in a row.

Tables and People	Number of Tables	Number of People
	1	5
	2	8
	3	11

Based on the pattern shown in the chart, which expression gives the number of people that can be seated in a row of n tables?

A. n

B. $n + 3$

C. $4n + 3$

D. $3n + 2$

57. Which list shows the numbers 1.2, $\frac{5}{4}$, $1\frac{1}{6}$, and $\frac{7}{8}$ in order from least to greatest?

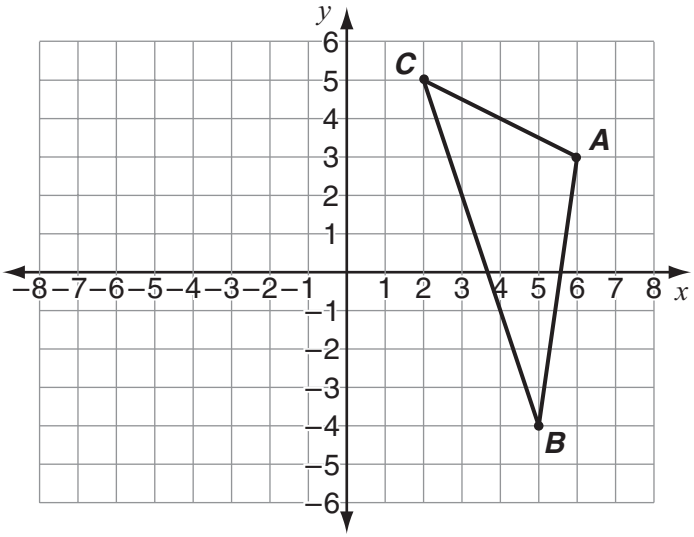
A. $\frac{7}{8}$, $\frac{5}{4}$, 1.2, $1\frac{1}{6}$

B. $\frac{7}{8}$, $1\frac{1}{6}$, 1.2, $\frac{5}{4}$

C. $\frac{5}{4}$, $\frac{7}{8}$, 1.2, $1\frac{1}{6}$

D. $\frac{5}{4}$, $\frac{7}{8}$, $1\frac{1}{6}$, 1.2

58. The figure below shows ΔABC on the coordinate plane.



What are the coordinates of the image of point A after the triangle is reflected over the y-axis?

A. (3, 6)

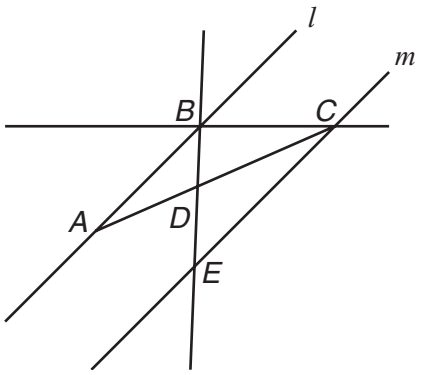
B. (6, –3)

C. (–6, –3)

D. (–6, 3)

Please go on to the next page.

59. In the figure below, lines l and m are parallel.



Which pair of triangles must be similar?

A. ΔABD and ΔCED
B. ΔABC and ΔBCE
C. ΔBCD and ΔABD
D. ΔECD and ΔBCD

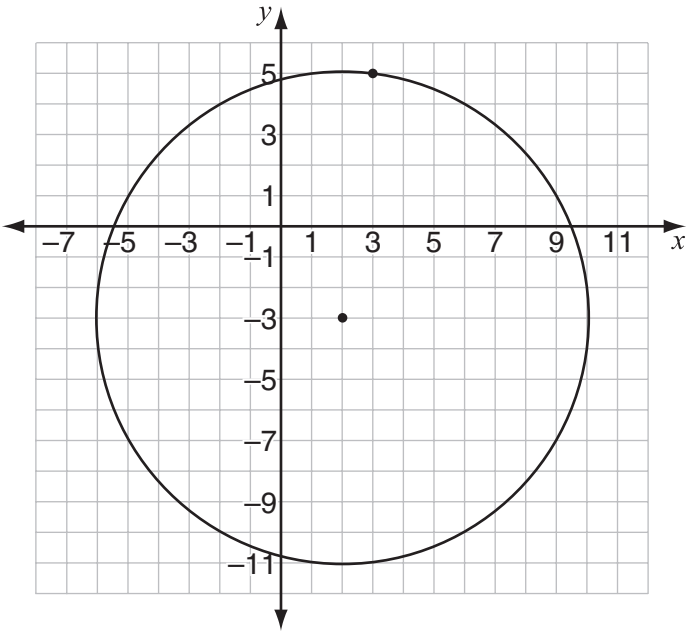
60. The surface area, S, of a sphere with radius r is given by the formula below.

$$S = 4\pi r^2$$

The radius of a basketball is 6 times the radius of a Ping-Pong ball. How many times greater is the surface area of the basketball than the surface area of the Ping-Pong ball?

A. 3
B. 6
C. 12
D. 36

61. A circle's center is at (2, –3), and one point on the circle is (3, 5). What is the length of the circle's radius?



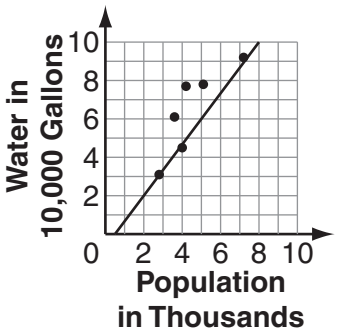
A. $\sqrt{21}$
B. $\sqrt{29}$
C. $\sqrt{65}$
D. $\sqrt{89}$

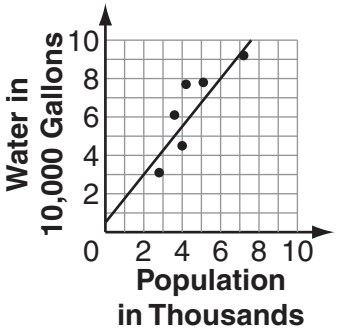
62. For what positive values of n is $\frac{1}{n} < n$?

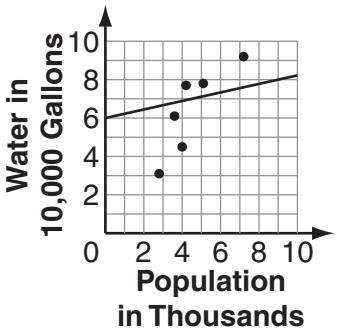
A. 1 and values greater than 1
B. only values greater than 1
C. only positive values less than 1
D. all positive values

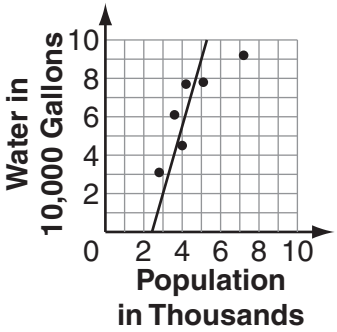
Please go on to the next page.

63. A scientist is researching the amount of water used in 6 towns. She organizes her data as a scatter plot comparing each town's population and water usage measured in gallons. Using the same 6 data points, which graph shows the line of best fit?

A.


B.


C.


D.


64. The chart below shows temperature readings taken by a weather balloon as it rose into the air.

Altitude in Kilometers	0	1	2	3	4
Temperature in Degrees C	30	23.5	17	10.5	4

Based on the data in this chart, which function relates altitude, a, in kilometers, to temperature, T, in degrees Celsius?

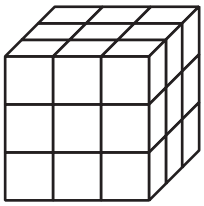
A. $T = -6.5a + 30$

B. $T = 6.5a + 30$

C. $T = a + 1$

D. $T = a - 6.5$

65. The figure shown below is a large unpainted cube made of 27 smaller cubes.



If the entire surface of the large cube is painted, how many of the small cubes will have paint on exactly two sides?

A. 6

B. 8

C. 12

D. 24

Please go on to the next page.

66. The table below lists the mean price of a gallon of gasoline during each month over one six-month period.

Date	Price
October 2003	$1.88
November 2003	$1.92
December 2003	$1.90
January 2004	$1.96
February 2004	$1.98
March 2004	$2.01

Which graph should be used to show the change in the price of a gallon of gasoline over time?

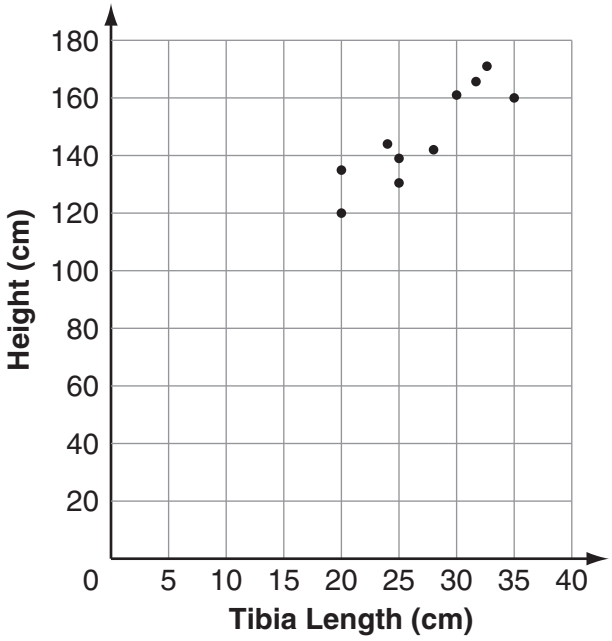
A. line graph
B. circle graph
C. box-and-whisker graph
D. histogram

67. Fun Times Ice-Cream Shop sells a large ice-cream cone for $2.50 and a small ice-cream cone for $1.75. To make a profit, the store needs to sell $700 worth of ice-cream cones. If l is the number of large cones sold and s is the number of small cones sold, which inequality shows the numbers of large and small cones that need to be sold to make a profit?

A. $2.50l + 1.75s \geq 700$
B. $2.50l + 1.75s \leq 700$
C. $1.75l + 2.50s \geq 700$
D. $1.75l + 2.50s \leq 700$

Please go on to the next page.

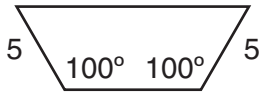
68. Scientists have discovered that a person's height is related to the length of the person's tibia (shinbone). The graph below plots the height and tibia length for ten individuals.

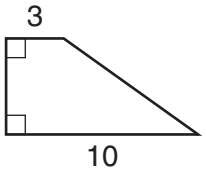


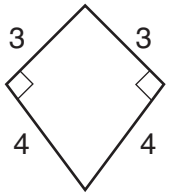
Based on an estimated line of best fit, which of the following is the best prediction of a man's height if his tibia is 15 centimeters long?

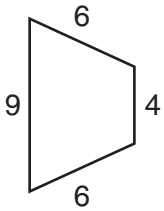
A. 60 centimeters
B. 90 centimeters
C. 110 centimeters
D. 140 centimeters

69. James hears a classmate say that all trapezoids have congruent base angles. Which figure could James use to show that his classmate's statement is incorrect?

A. 

B. 

C. 

D. 

Please go on to the next page.

Write your answers to questions 70 through 72 in the spaces provided in your Student Response Booklet. Show all of your work.

70. Evaluate: $\frac{2}{3} + \frac{1}{6} - \frac{3}{4}$

71. Evaluate: $4 - 8 \div 2 + 6 \times 5$

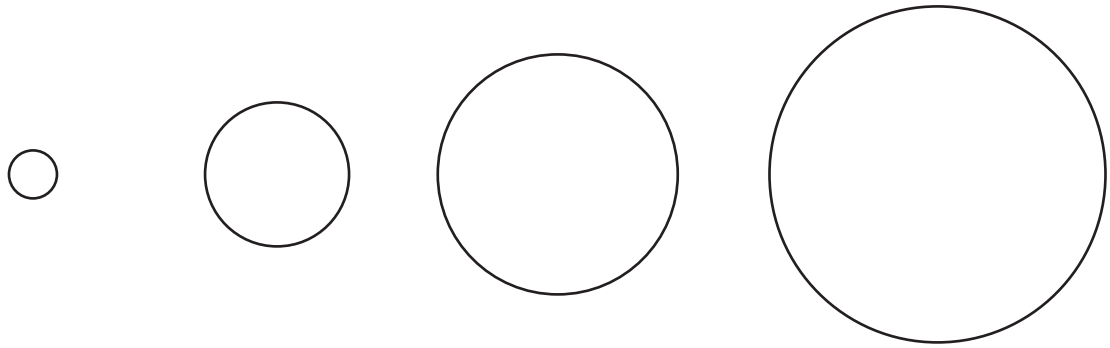
72. What is the solution to the equation below?

$3x - 7x + 4 = 4x - 7$

Please go on to the next page.

Write your answer to question 73 in the space provided for it in your Student Response Booklet. Show all of your work.

73. Many movies use computer-generated animation. To convey the sense of movement on the screen, an image will grow or shrink over time. The figures below show the initial image of a circular window, together with its radius and area, as well as the growth of the initial image over various numbers of seconds.



Time: 0 sec.	Time: 1 sec.	Time: 2 sec.	Time: 3 sec.
Radius: 1 cm	Radius: 3 cm	Radius: 5 cm	Radius: 7 cm
Area: π cm^2	Area: 9π cm^2	Area: 25π cm^2	Area: 49π cm^2

a. According to this pattern, what would be the radius and area at 4 seconds?

b. Write an equation showing the relationship between the radius, r, of the circle and the number of seconds, t.

c. Use the equation you wrote in part b to find how many centimeters long the radius of the circle will be after 20 seconds. Show or explain how you found your answer.

d. Use the equation you wrote in part b to find the number of seconds it will take for the image to have a radius of 65 centimeters. Show or explain how you found your answer.

e. Explain why you would describe the relationship between time and area as linear or nonlinear.

Please STOP. STOP