RHODE ISLAND COMPREHENSIVE ASSESSMENT SYSTEM

PRACTICE TEST

Mathematics

Grade 7

Student Name

School Name

District Name

RIDE Rhode Island Department of Education

Grade 7 Mathematics

PRACTICE TEST

SESSION 1

This session contains 20 questions.

You may use your reference sheet during this session.
*You may **not** use a calculator during this session.*

Directions

Read each question carefully and then answer it as well as you can. You must record all answers in this Practice Test Booklet.

For some questions, you will mark your answers by filling in the circles in your Practice Test Booklet. Make sure you darken the circles completely. Do not make any marks outside of the circles. If you need to change an answer, be sure to erase your first answer completely.

For other questions, you will need to fill in an answer grid. Directions for completing questions with answer grids are provided on the next page.

If a question asks you to show or explain your work, you must do so to receive full credit. Write your response in the space provided. Only responses written within the provided space will be scored.

Directions for Completing Questions with Answer Grids

1. Work the question and find an answer.
2. Enter your answer in the answer boxes at the top of the answer grid.
3. Print only one number or symbol in each box. Do not leave a blank box in the middle of an answer.
4. Under each answer box, fill in the circle that matches the number or symbol you wrote above. Make a solid mark that completely fills the circle.
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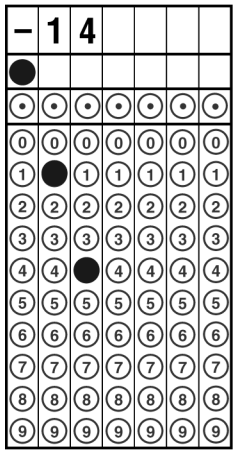
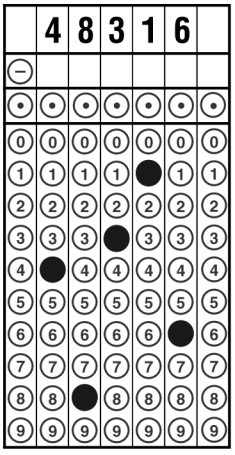
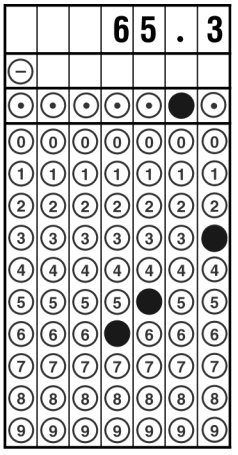
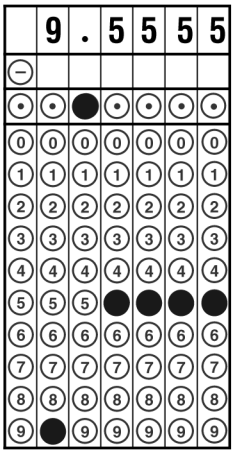
6. Fractions cannot be entered into an answer grid and will not be scored. Enter fractions as decimals.
7. If you need to change an answer, be sure to erase your first answer completely.
8. See below for examples of how to correctly complete an answer grid.

Examples









1 A student can run 6 miles in $\frac{3}{4}$ hour. At this rate, what is the total number of miles the student can run in 1 hour?

Ⓐ $\frac{1}{8}$

Ⓑ $\frac{2}{9}$

Ⓒ 8

Ⓓ 9

2 A cube will be sliced once.

Which of the following two-dimensional figures could result from slicing the cube?

Select the **three** correct answers.

Ⓐ circle

Ⓑ prism

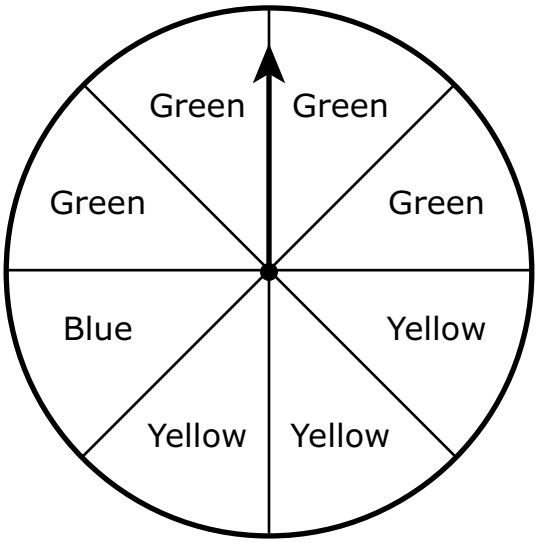
Ⓒ triangle

Ⓓ octagon

Ⓔ pentagon

Ⓕ parallelogram

3 This spinner is divided into 8 equal sections. Each section is either green, yellow, or blue, as shown.



The arrow on the spinner will be spun 200 times.

Based on the number of times the arrow on the spinner is spun, which of the following predictions are **most** likely to be true?

Select the **three** correct answers.

Ⓐ The arrow will stop on green approximately 50 times.

Ⓑ The arrow will stop on green approximately 100 times.

Ⓒ The arrow will stop on yellow approximately 75 times.

Ⓓ The arrow will stop on yellow approximately 125 times.

Ⓔ The arrow will stop on blue approximately 25 times.

Ⓕ The arrow will stop on blue approximately 50 times.

4 Which of the following shows the factored form of this expression?

$$10k + 40$$

Ⓐ $5(2k + 35)$

Ⓑ $5(2k + 40)$

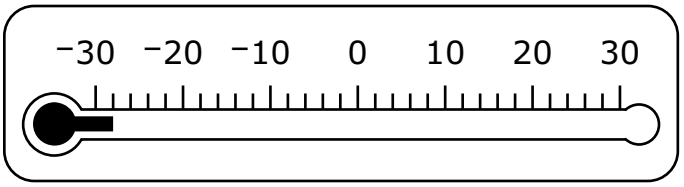
Ⓒ $10(k + 4)$

Ⓓ $10(k + 40)$

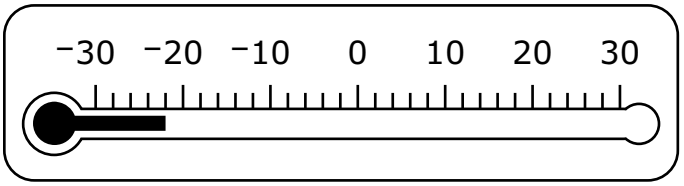
5 Yesterday, the temperature at sunrise was −3 degrees Fahrenheit (ºF). At sunset, the temperature was 25 degrees warmer than the temperature at sunrise.

Which of the following shows the temperature, in degrees Fahrenheit, at sunset?

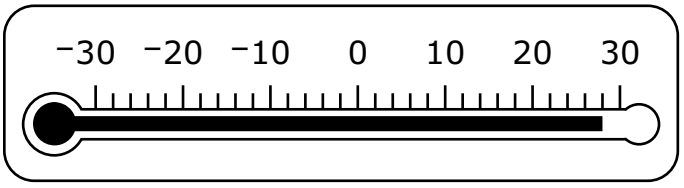
Ⓐ **Temperature at Sunset (°F)**



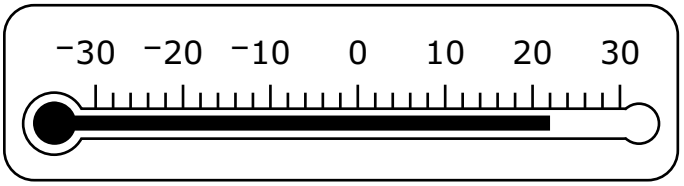
Ⓑ **Temperature at Sunset (°F)**



Ⓒ **Temperature at Sunset (°F)**



Ⓓ **Temperature at Sunset (°F)**



This question has four parts. Be sure to label each part of your response.

6 Students are playing a game. They roll a number cube once and then spin the arrow on a spinner once.

- The number cube has faces numbered 1 through 6.
- The spinner has 3 equal-sized sections. One section is colored blue, one red, and one green.

A. What is the probability that, on a student's turn, the number cube will land with a 5 on the top face? Show or explain how you got your answer.

B. What is the probability that, on a student's turn, the number cube will land with an odd number on the top face? Show or explain how you got your answer.

C. What is the probability that, on a student's turn, the number cube will land with a 2 on the top face **and** the arrow on the spinner will land on the section that is green? Show or explain how you got your answer.

D. What is the probability that, on a student's turn, the number cube will land with an even number on the top face **and** the arrow on the spinner will land on a section that is **not** blue? Show or explain how you got your answer.

6

7 Which of the following is equivalent to $\frac{11}{18}$?

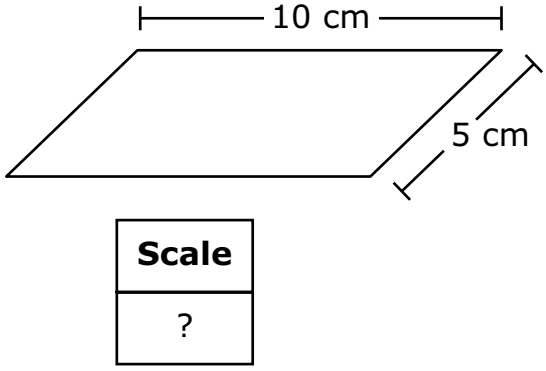
Ⓐ 0.61

Ⓑ $0.6\overline{1}$

Ⓒ $0.\overline{61}$

Ⓓ 0.611

8 A parking lot in the shape of a parallelogram has a length of 300 meters and a width of 150 meters. A scale drawing of the parking lot has a length of 10 centimeters and a width of 5 centimeters, as shown.



Which of the following is the scale used in the drawing?

Ⓐ 1 centimeter = 10 meters

Ⓑ 1 centimeter = 15 meters

Ⓒ 1 centimeter = 30 meters

Ⓓ 1 centimeter = 60 meters

9 A farmer sprayed two rows of flowering plants, Row 1 and Row 2, each with a different type of fertilizer.

- Each row received the same amount of sunlight and water.
- After several weeks, the farmer selected every third plant in each row and counted the number of flowers on those plants.
- The farmer calculated the mean and the mean absolute deviation of the number of flowers on the plants in each row.

Based on the results, the farmer determined that Row 2 had the greater number of flowers per plant, and the lesser amount of variation in the number of flowers per plant.

Which of the following could have been the farmer's results?

Ⓐ Row 1: mean = 10.2, mean absolute deviation = 0.39
Row 2: mean = 14.9, mean absolute deviation = 2.2

Ⓑ Row 1: mean = 10.2, mean absolute deviation = 2.2
Row 2: mean = 14.9, mean absolute deviation = 0.39

Ⓒ Row 1: mean = 14.9, mean absolute deviation = 0.39
Row 2: mean = 10.2, mean absolute deviation = 2.2

Ⓓ Row 1: mean = 14.9, mean absolute deviation = 2.2
Row 2: mean = 10.2, mean absolute deviation = 0.39

This question has two parts.

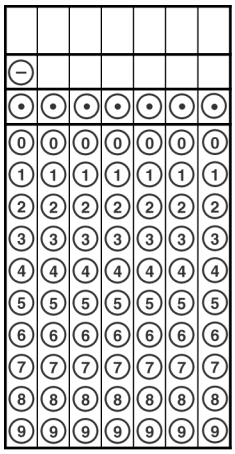
10 The first four terms in an arithmetic pattern are shown.

5, 8, 11, 14, . . .

Part A

What is the seventh term in the pattern?

Enter your answer in the answer box*e*s at the top of the answer grid **and** completely fill the matching circles.



Part B

Which of the following expressions can be used to find the *n*th term in the pattern?

Ⓐ $3(n - 1)$

Ⓑ $3 + 5(n - 1)$

Ⓒ $3 + (n - 1) + 5$

Ⓓ $3(n - 1) + 5$

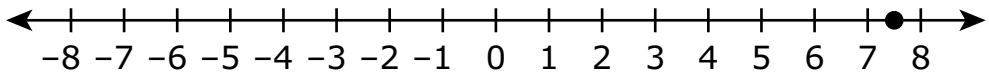
11 Logan wrote this equation.

$$-5.5 + 2 = x$$

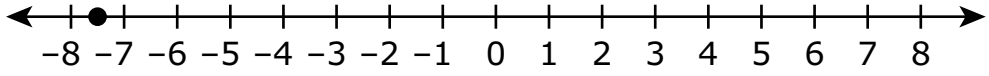
Logan wants to plot a point on a number line to represent the value of x.

Which number line shows where Logan should plot the point?

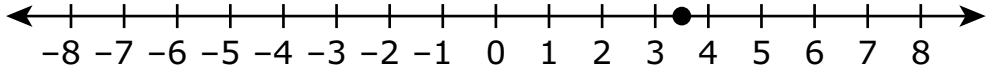
Ⓐ



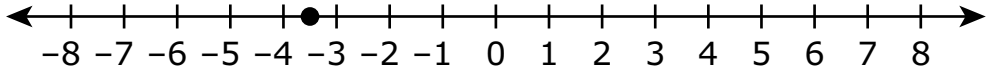
Ⓑ



Ⓒ



Ⓓ



12 Emma noticed that the new admission fee for the zoo is 50% more than last year's fee. She wrote this expression to represent the new admission fee, where f represents last year's fee.

$$f + (0.50 \times f)$$

Which of the following expressions shows another way Emma could have represented the new admission fee?

Ⓐ $1.5f$

Ⓑ $150f$

Ⓒ $f + 1.5$

Ⓓ $f + 150$

13 A principal surveyed 200 students from two different grades to find out whether they prefer to participate in fall sports or spring sports. This table shows the results.

Sports Survey

Season	Seventh-Grade	Eighth-Grade
fall	63	45
spring	37	55

Based on the table, what is the probability that a student chosen at random would prefer to participate in spring sports rather than fall sports?

Ⓐ 37%

Ⓑ 46%

Ⓒ 54%

Ⓓ 92%

14 Which of the following expressions have a positive value?

Select the **two** correct answers.

Ⓐ $-2 \times (-4)$

Ⓑ $8 \div (-2)$

Ⓒ -9×7

Ⓓ $-12 \div 6$

Ⓔ $5 \times (-3)$

Ⓕ $-14 \div (-2)$

This question has four parts. Be sure to label each part of your response.

15 Hank has been hired to paint all the rooms in a hotel.

- All of the rooms in the hotel are the same size.
- Hank will paint 3 hotel rooms every $7\frac{1}{2}$ hours.
- Hank will paint at the same rate until the job is complete.

A. How many hours will it take Hank to paint 6 hotel rooms? Show or explain how you got your answer.

B. How many hours will it take Hank to paint 1 hotel room? Show or explain how you got your answer.

C. Write an equation that can be used to find h, the number of hours it will take Hank to paint r hotel rooms.

D. It will take Hank 1,200 hours to paint all the hotel rooms. What is the total number of rooms in the hotel? Show or explain how you got your answer.

15

16 What value of x makes this equation true?

$$2x - 1 = 9$$

Ⓐ $x = 3\frac{1}{2}$

Ⓑ $x = 4$

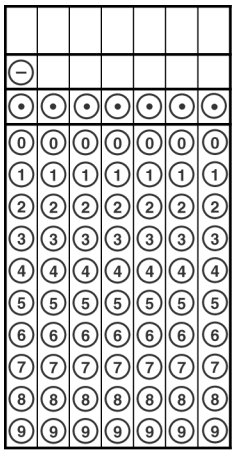
Ⓒ $x = 5$

Ⓓ $x = 5\frac{1}{2}$

17 What is the value of this expression?

$$(2 - 3)(4 - 5)$$

Enter your answer in the answer boxes at the top of the answer grid **and** completely fill the matching circles.



18 A student wants to determine the average price of a gallon of gas in his state. He will survey gas stations to collect data.

Which of the following samples should he survey to collect the **best** representative data?

Ⓐ 20 randomly selected gas stations across the state

Ⓑ 20 randomly selected gas stations closest to the student

Ⓒ 20 randomly selected gas stations from three cities in the state

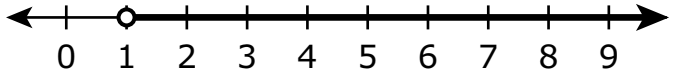
Ⓓ 20 randomly selected gas stations that sell the same brand of gas

19 Customers must spend a minimum of $25 at an online art supply store to receive free shipping. A customer ordered 10 tubes of paint and an easel.

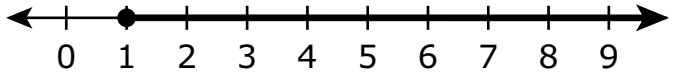
- Each tube of paint cost the same amount.
- The easel cost $15.

Which of the following number lines shows all the possible costs, in dollars, of one tube of paint if the customer received free shipping?

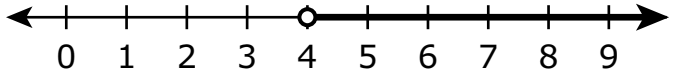
Ⓐ



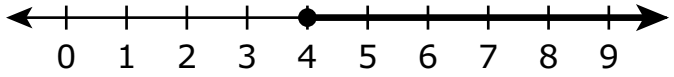
Ⓑ



Ⓒ



Ⓓ



20 This table shows the relationship between h, the number of hours a car is parked at a parking meter, and q, the number of quarters it costs to park at the parking meter.

Cost to Park

Number of Hours, h	Number of Quarters, q
$\frac{1}{2}$	1
1	2
$1\frac{1}{2}$	3
2	4

Which of the following equations **best** models the relationship between h and q?

Ⓐ $q = h$

Ⓑ $q = 2h$

Ⓒ $q = h + 1$

Ⓓ $q = h + 2$

STOP!

Grade 7 Mathematics

PRACTICE TEST

SESSION 2

This session contains 20 questions.

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Directions

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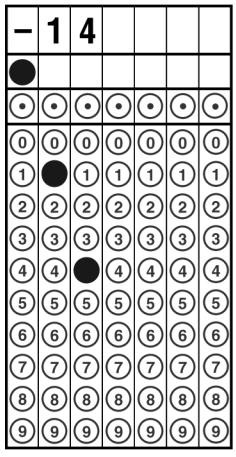
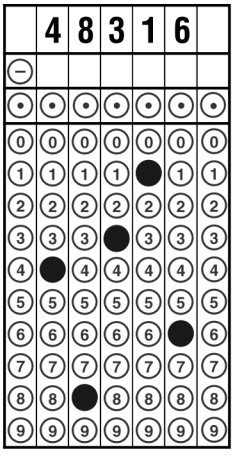
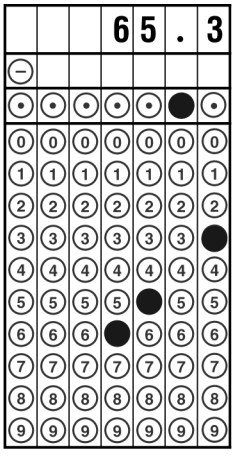
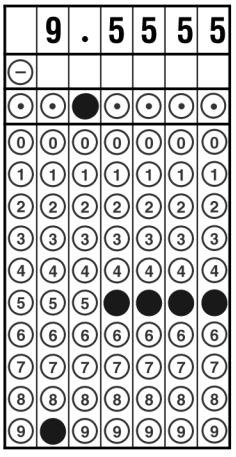
Examples









21 The length of a building is 60 feet. The length of the building on a scale drawing is 4 inches.

Which ratio describes the scale of the drawing?

Ⓐ 1 inch : 4 feet

Ⓑ 1 inch : 15 feet

Ⓒ 1 inch : 30 feet

Ⓓ 1 inch : 60 feet

22 An athlete did sit-ups each day for 3 days. She did a total of 325 sit-ups.

- On the first day, she did 124 sit-ups.
- On the second day, she did $\frac{3}{4}$ the number of sit-ups she did on the first day.

Which of the following statements about the number of sit-ups the athlete did on the second and the third days is true?

Ⓐ The athlete did 93 sit-ups on the second day and 108 sit-ups on the third day.

Ⓑ The athlete did 93 sit-ups on the second day and 217 sit-ups on the third day.

Ⓒ The athlete did 108 sit-ups on the second day and 93 sit-ups on the third day.

Ⓓ The athlete did 108 sit-ups on the second day and 217 sit-ups on the third day.

23 Consider this expression.

$$-4(x - 1) + 2$$

Which of the following is equivalent to the expression?

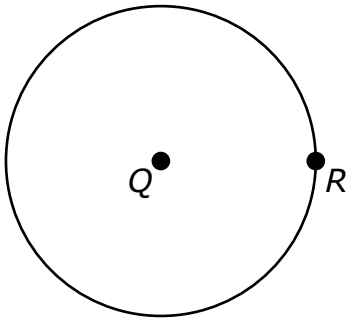
Ⓐ $-4x - 8$

Ⓑ $-4x - 2$

Ⓒ $-4x + 1$

Ⓓ $-4x + 6$

24 A student draws a circle with a radius of 4 inches. The student labels the center of the circle as point Q and labels point R on the circle, as shown.



What is the length, in inches, of the distance from point Q to point R?

Ⓐ 64

Ⓑ 16

Ⓒ 8

Ⓓ 4

25 The computer teacher at a middle school spent $12,950 to buy a storage cart and 25 laptop computers. The total purchase is represented by this equation, where c stands for the cost of each laptop computer purchased.

$$25c + 450 = 12{,}950$$

What was the cost of each laptop computer that the teacher purchased?

Ⓐ $475

Ⓑ $500

Ⓒ $518

Ⓓ $536

26 Jacinta has 2 blue marbles, 4 red marbles, and 5 green marbles in a bag. All the marbles are the same size. She will select one marble from the bag without looking.

What is the probability that Jacinta will select a green marble?

Ⓐ $\frac{1}{3}$

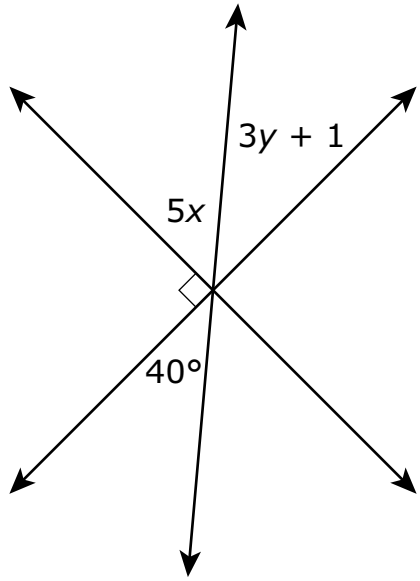
Ⓑ $\frac{5}{6}$

Ⓒ $\frac{5}{11}$

Ⓓ $\frac{6}{11}$

This question has four parts. Be sure to label each part of your response.

27 Three lines intersect to form six angles. The measures, in degrees, of some of the angles are represented by expressions, as shown in this diagram.



A. Based on the diagram, write an algebraic equation that can be used to find the value of x. Show or explain how you got your answer.

B. Use your equation from Part A to determine the value of x. Show or explain how you got your answer.

C. Based on the diagram, write an algebraic equation that can be used to find the value of y. Show or explain how you got your answer.

D. Use your equation from Part C to determine the value of y. Show or explain how you got your answer.

27

28 A student has $25 to buy walnuts and cashews.

- Walnuts cost $5 per pound.
- Cashews cost $7 per pound.
- The student buys 3 pounds of walnuts.

Which of the following inequalities can be used to find c, the possible number of pounds of cashews that the student can buy?

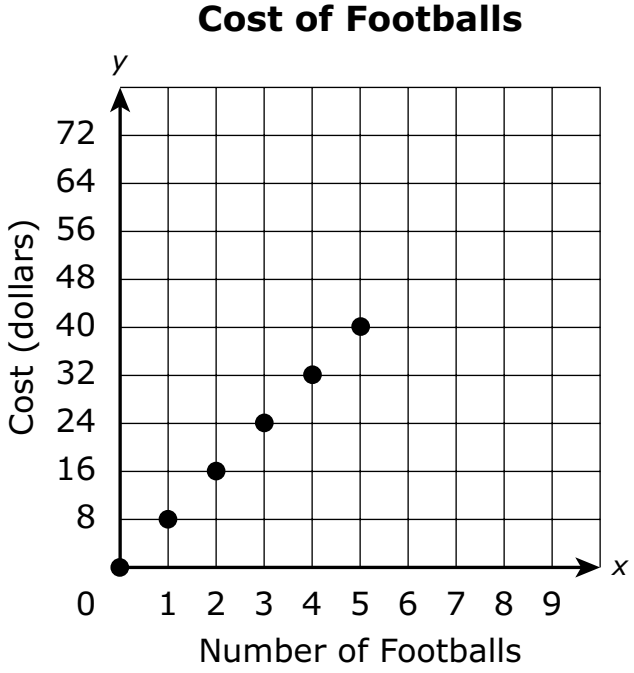
Ⓐ $15 + 7c \geq 25$

Ⓑ $15 + 7c \leq 25$

Ⓒ $5 + 7c \geq 25$

Ⓓ $5 + 7c \leq 25$

29 This graph shows the relationship between x, the number of footballs a team orders, and y, the total cost in dollars of the footballs.



Based on the graph, which of the following statements about the cost of footballs is true?

Ⓐ The cost of 4 footballs is $4. The unit rate per football is $1.

Ⓑ The cost of 4 footballs is $24. The unit rate per football is $6.

Ⓒ The cost of 4 footballs is $32. The unit rate per football is $8.

Ⓓ The cost of 4 footballs is $40. The unit rate per football is $10.

30 The current prices of movie tickets at a theater are shown in this table.

Movie Tickets at a Theater

Type of Ticket	Price (dollars)
child	$9.50
adult	$11.25

The owners of the theater plan to increase the prices of movie tickets by 20%.

After the price increases occur, what will be the total price, in dollars, of 3 child movie tickets and 1 adult movie ticket?

Ⓐ $39.75

Ⓑ $40.55

Ⓒ $45.45

Ⓓ $47.70

This question has two parts.

31 A baker sells boxes of cookies.

This table shows the total cost, in dollars, for different numbers of boxes of cookies.

Cost of Cookies

Number of Boxes, *n*	Total Cost, *c* (dollars)
3	10.50
4	14.00
5	17.50
9	31.50

Part A

Based on the table, what is the total cost, in dollars, of 7 boxes of cookies?

Ⓐ $20.50

Ⓑ $21.00

Ⓒ $24.50

Ⓓ $28.00

Part B

Which equation can be used to find c, the total cost in dollars of n boxes of cookies?

Ⓐ $c = 3.50n$

Ⓑ $c = 7.00n$

Ⓒ $c = 10.50n$

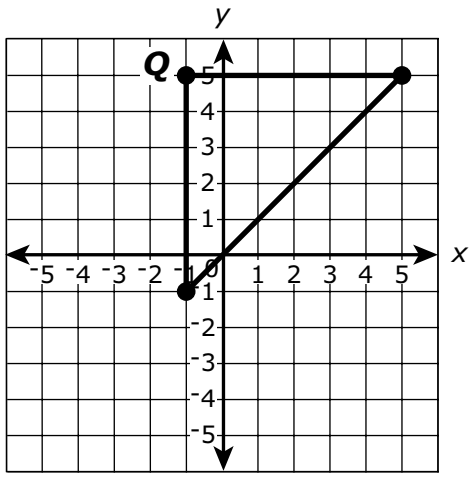
Ⓓ $c = 21.00n$

32 A student drew triangle *PQR* on a coordinate plane. The triangle had the following conditions:

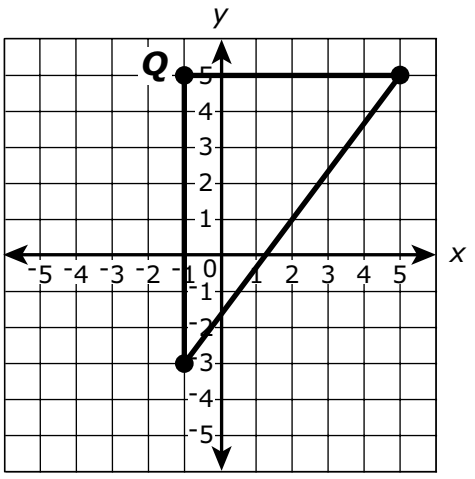
- The measure of $\angle Q$ is 90 degrees.
- The length of $\overline{QR}$ is 6 units.
- The length of $\overline{PQ}$ is 8 units.

Which of the following coordinate planes shows the triangle the student drew?

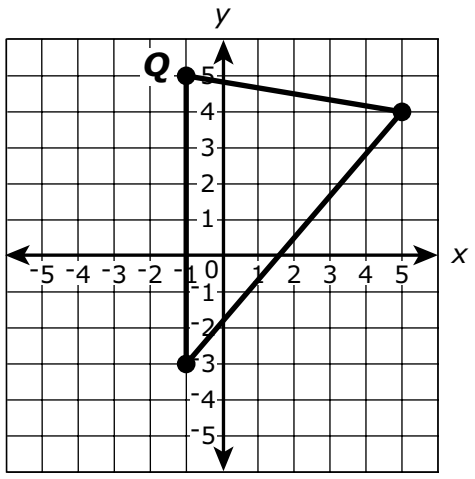
Ⓐ



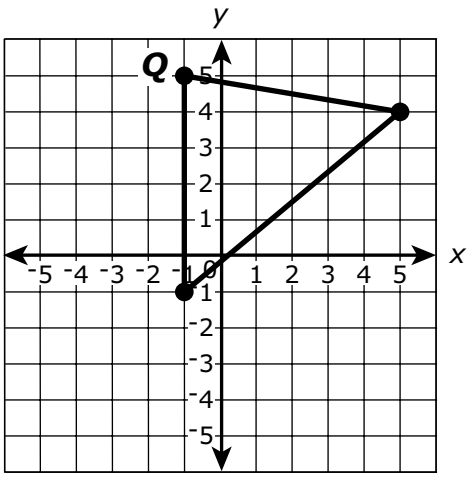
Ⓑ



Ⓒ



Ⓓ



33 Kites and spools of kite string are sold at a toy store.

- Each kite costs $5, including tax.
- Each spool of kite string costs $3, including tax.

Which of the following equations represents c, the total cost, in dollars, of k kites and 2 spools of kite string at the toy store?

Ⓐ $c = 5k + 6$

Ⓑ $c = 5k + 3$

Ⓒ $c = 6k + 5$

Ⓓ $c = 3k + 5$

34 Dana has 8 baseball cards, 10 football cards, 4 hockey cards, and 14 basketball cards. All the cards are the same size and shape. Dana will select one card at random.

What is the probability that the card Dana selects will be a hockey card?

Ⓐ $\frac{4}{36}$

Ⓑ $\frac{4}{32}$

Ⓒ $\frac{1}{4}$

Ⓓ $\frac{1}{3}$

35 The label on Adriana's carton of juice has this information listed.

- One serving size equals $\frac{1}{2}$ cup.
- Each serving has 30% of the recommended daily amount of vitamin C.

Yesterday, Adriana drank $2\frac{1}{4}$ cups of juice. What percent of the recommended daily amount of vitamin C was in the juice Adriana drank yesterday?

Ⓐ 33.75%

Ⓑ 67.5%

Ⓒ 120%

Ⓓ 135%

This question has three parts. Be sure to label each part of your response.

36 Trevor has a recipe for honey mustard salad dressing. This table shows the ingredients and the amounts of each ingredient needed to make his recipe.

Salad Dressing Ingredients

Ingredient	Amount Needed
oil	1 cup
vinegar	$\frac{5}{8}$ cup
honey	$\frac{1}{2}$ cup
mustard	1 tablespoon

1 fluid ounce = 2 tablespoons

1 cup = 8 fluid ounces

A. What is the number of fluid ounces of vinegar needed to make Trevor's recipe? Show or explain how you got your answer.

B. What is the total number of fluid ounces of salad dressing that Trevor's recipe will make? Show or explain how you got your answer.

C. Trevor plans to use 3 tablespoons of salad dressing per serving. What is the total number of servings that he can make with his recipe? Show or explain how you got your answer.

36

37 A bicycle is on sale at a store for 15% off its original price. The original price, in dollars, of the bicycle is represented by the variable p.

Which of the following expressions represent the final sale price, in dollars, of the bicycle?

Select the **two** correct answers.

Ⓐ $p - 0.15p$

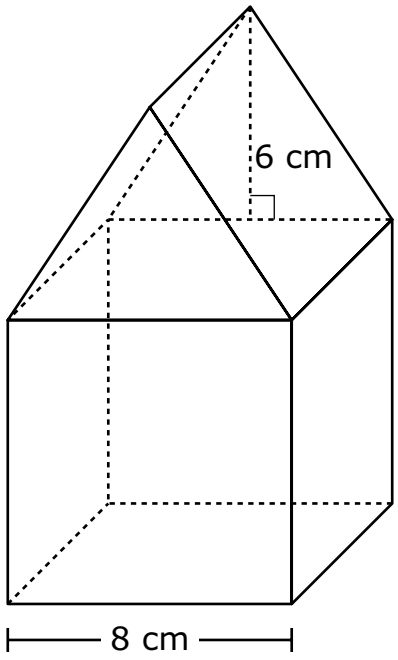
Ⓑ $p - 0.15$

Ⓒ $p - 0.85p$

Ⓓ $0.15p$

Ⓔ $0.85p$

38 A solid figure is composed of a cube and a triangular prism. The figure and some of its dimensions are shown in this diagram.



Based on the diagram, what is the volume of the figure?

Ⓐ 560 cubic centimeters

Ⓑ 704 cubic centimeters

Ⓒ 728 cubic centimeters

Ⓓ 896 cubic centimeters

39 Consider this expression.

$$-8x + 2$$

Which of the following is equivalent to the expression?

Ⓐ $3x + (5x - 2)$

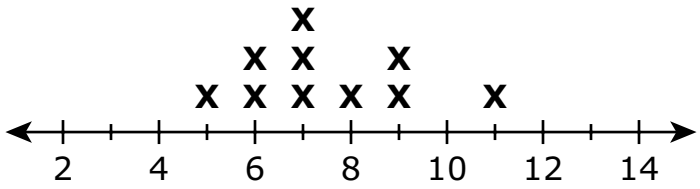
Ⓑ $2(-4x + 1)$

Ⓒ $-4(2x - 1)$

Ⓓ $-4(-2x + 1)$

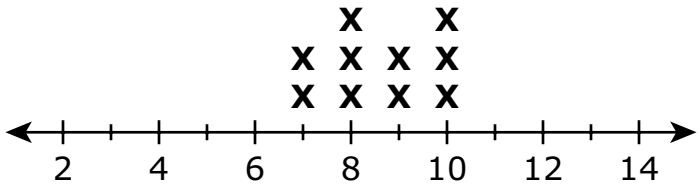
40 A ship's captain uses line plots to record the numbers of whales seen on morning and afternoon whale-watch trips, as shown.

Whales Seen on Morning Trips



Number of Whales

Whales Seen on Afternoon Trips



Number of Whales

Based on the line plots, which of the following comparisons are true?

Select the **two** correct answers.

Ⓐ The mean number of whales seen on morning trips is equal to the mean number of whales seen on afternoon trips.

Ⓑ The mean number of whales seen on morning trips is greater than the mean number of whales seen on afternoon trips.

Ⓒ The mean number of whales seen on morning trips is less than the mean number of whales seen on afternoon trips.

Ⓓ The mean absolute deviation in the number of whales seen on morning trips is equal to the mean absolute deviation in the number of whales seen on afternoon trips.

Ⓔ The mean absolute deviation in the number of whales seen on morning trips is greater than the mean absolute deviation in the number of whales seen on afternoon trips.

Ⓕ The mean absolute deviation in the number of whales seen on morning trips is less than the mean absolute deviation in the number of whales seen on afternoon trips.

STOP!