LEAP

Mathematics

2016 Practice Test

Grade 6

DEPARTMENT of EDUCATION

Louisiana Believes

Session 1

Directions:

Today, you will take Session 1 of the Grade 6 Mathematics Test. You will not be able to use a calculator in this session.

Read each question. Then, follow the directions to answer each question. Mark your answers by completely filling in the circles in your test booklet. Do not make any pencil marks outside of the circles. If you need to change an answer, be sure to erase your first answer completely.

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GO ON ►

Directions for Completing the Answer Grids

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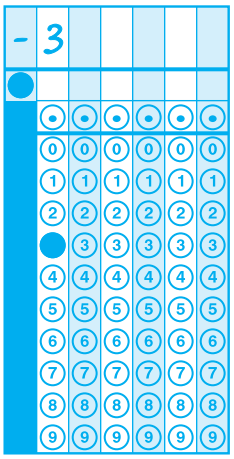
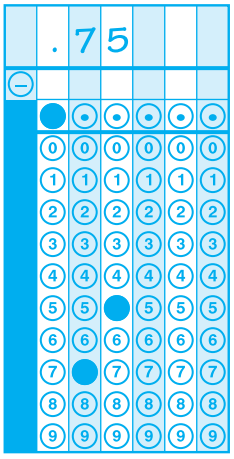
To answer −3 in a question, fill in the answer grid as shown on the left in your Test Booklet.



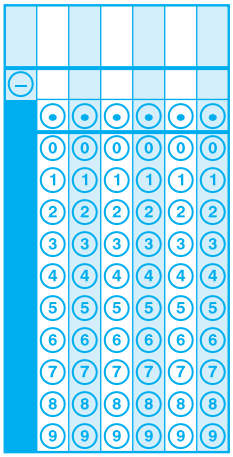
To answer .75 in a question, fill in the answer grid as shown on the right in your Test Booklet.



GO ON ►

1. Mr. Polandski is adding food coloring to water to create his own paint colors. He has $5\frac{1}{3}$ cups of water. To create a color, he needs $\frac{2}{3}$ cup of water. How many paint colors, in all, can Mr. Polandski create if he uses all the cups of water he has?

   Enter your answer in the box.



GO ON ▶

2. The number of pens that Mason has can be described by the expression $2n + 9$ where n is the number of pens in an unopened package of pens.

   Select **all** the expressions that could also be used to represent the number of pens that Mason has.

   Ⓐ $11n$

   Ⓑ $2(n + \frac{9}{2})$

   Ⓒ $2(n + 8) + 1$

   Ⓓ $n + n + 9 + 9$

   Ⓔ $(0.5)(4n) + (0.5)(18)$

3. The table below shows the number of pets, by type, the sixth grade students have at Middleton Elementary School.

Pets

Pet Type	Number of Pets
dog	54
cat	42
fish	14
hamster	8

   What is the ratio of cats as pets to fish as pets?

   Ⓐ 1 to 3

   Ⓑ 3 to 1

   Ⓒ 9 to 7

   Ⓓ 7 to 9

GO ON ►

4. What is 437 ÷ 19?

   Ⓐ 13

   Ⓑ 19

   Ⓒ 22

   Ⓓ 23

5. These five rational numbers are plotted on a horizontal number line.

$$-\frac{2}{3},\quad \frac{7}{8},\quad -\frac{4}{5},\quad \frac{7}{10},\quad -\frac{4}{3}$$

   Which statement about the locations of the rational numbers on the number line is true?

   Ⓐ $-\frac{2}{3}$ is farthest to the left, and $\frac{7}{8}$ is farthest to the right.

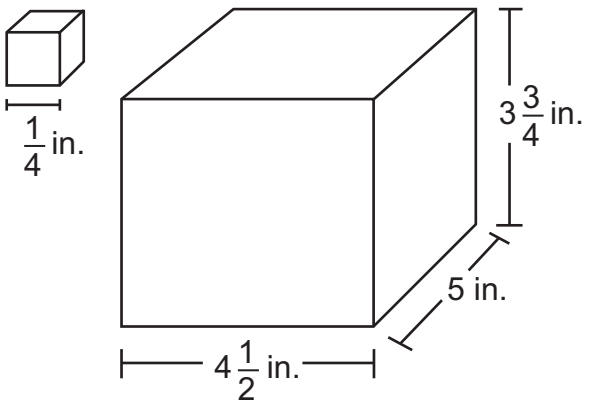
   Ⓑ $-\frac{4}{3}$ is farthest to the left, and $\frac{7}{8}$ is farthest to the right.

   Ⓒ $-\frac{2}{3}$ is farthest to the left, and $\frac{7}{10}$ is farthest to the right.

   Ⓓ $-\frac{4}{3}$ is farthest to the left, and $\frac{7}{10}$ is farthest to the right.

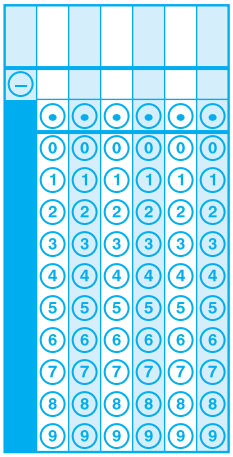
GO ON ▶

6. Small cubes with edge lengths of $\frac{1}{4}$ inch will be packed into the right rectangular prism shown.



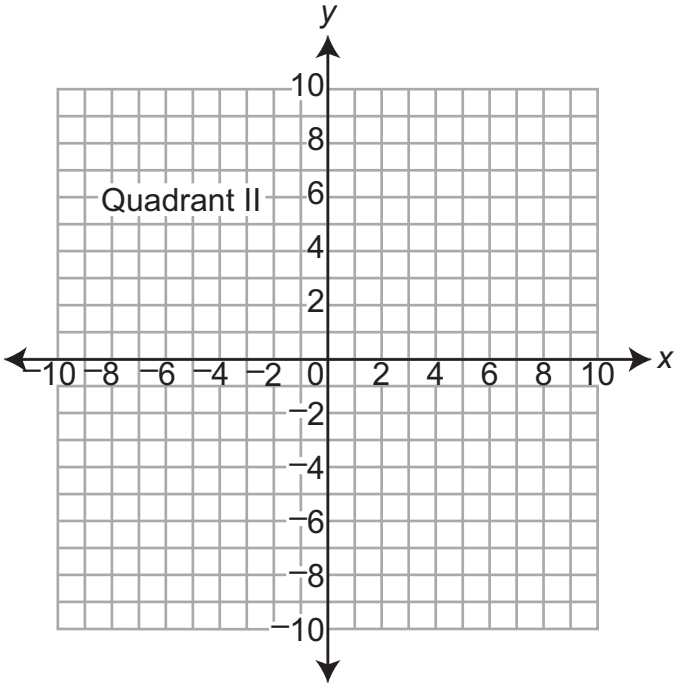
How many small cubes are needed to completely fill the right rectangular prism?

Enter your answer in the box.



GO ON ▶

7. Jolie draws a map of her neighborhood on a coordinate plane. She draws her house at a point in Quadrant II of the coordinate plane.



Select **all** the points that could represent the location of Jolie's house.

Ⓐ (0, 5)

Ⓑ (1, –4)

Ⓒ (–2, 0)

Ⓓ (–4, 7)

Ⓔ (–3, –1)

Ⓕ (–1, 9)

GO ON ▶

8. What is the greatest common factor of 78 and 96?

   Ⓐ 2
   Ⓑ 6
   Ⓒ 8
   Ⓓ 12

9. Which questions are statistical questions?

   Select **each** correct answer.

   Ⓐ How old is Mr. Patterson?
   Ⓑ How many states has Juanita visited?
   Ⓒ How many students are in Mrs. Lee's class today?
   Ⓓ How many students eat lunch in the cafeteria each day?
   Ⓔ How many pets does each student at your school have at home?

10. The tallest mountain in North America is Mount Denali. The height of Mt. Denali is 20,322 feet above sea level. The height of every mountain in North America can be expressed as an inequality. Which inequality represents the height, h, in feet, of every mountain in North America?

    Ⓐ $h < 20{,}322$
    Ⓑ $h > 20{,}322$
    Ⓒ $h \leq 20{,}322$
    Ⓓ $h \geq 20{,}322$

GO ON ►

11. Riley took 5 tests in science.

- Each test had a different score.
- The mean score on the tests was 90%.
- The median score on the tests was 85%.

Based on this information, select **all** the statements that must be true.

Ⓐ More than half of the scores were 85% or greater.

Ⓑ More than half of the scores were 90% or greater.

Ⓒ There were no scores less than 85%.

Ⓓ There were no scores less than 90%.

Ⓔ At least one score was exactly 85%.

Ⓕ At least one score was exactly 90%.

12. Kyle is thinking of a number that is greater than $-6\frac{2}{3}$ and less than $-6\frac{1}{2}$. Which number could be Kyle's number?

Ⓐ –6.7

Ⓑ –6.6

Ⓒ –6.5

Ⓓ –6.4

GO ON ▶

13. What is the value of 351 ÷ 26?

Ⓐ $12\frac{3}{20}$

Ⓑ $13\frac{5}{13}$

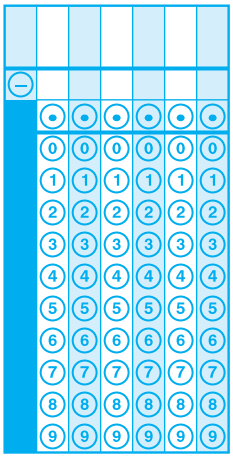
Ⓒ $13\frac{1}{2}$

Ⓓ $14\frac{7}{26}$

14. William and Jason are playing a game. William started at zero and moved in the negative direction 9 spaces, which he modeled with the number –9. James also started at zero and moved in the opposite direction 9 spaces.

Which number models Jason's position in the game?

Enter your answer in the box.



GO ON ►

15. Mr. Zenon makes baby food. The baby food is a mixture of apples and pears. The ratio of cups of apples to cups of pears in the baby food is 5:2.

Which statements about the baby food that Mr. Zenon makes are true?

Select **all** the correct statements.

Ⓐ The total volume of the baby food is always 7 cups.

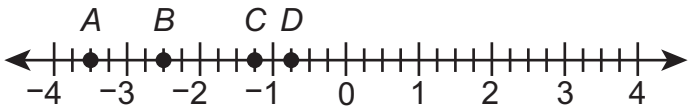
Ⓑ The total volume of the baby food, in cups, is always a multiple of 7.

Ⓒ The baby food always has exactly 3 more cups of apples than cups of pears.

Ⓓ For every cup of pears in the baby food, Mr. Zenon includes $2\frac{1}{2}$ cups of apples.

Ⓔ For every cup of apples in the baby food, Mr. Zenon includes $\frac{2}{5}$ cup of pears.

16. This number line shows four points.



Which point is located at $-\frac{3}{4}$?

Ⓐ point *A*

Ⓑ point *B*

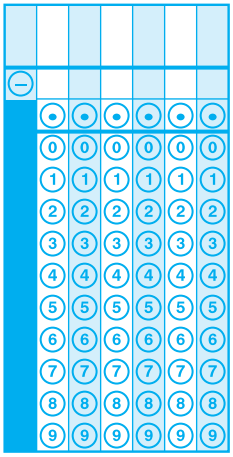
Ⓒ point *C*

Ⓓ point *D*

GO ON ▶

17. Ralph plotted the points (–4, 3) and (–4, –3) on a coordinate grid. What is the distance, in units, between the points Ralph plotted?

    Enter your answer in the box.



18. Holly records the temperature, in degrees Fahrenheit, for two different cities. In one of the cities, the temperature is 15 degrees above zero. Holly records this as 15. In the other city, the temperature is 15 degrees below zero. Which value represents the temperature Holly records?

    Ⓐ –30

    Ⓑ –15

    Ⓒ 15

    Ⓓ 30

GO ON ►

19. Desean counted the e-mails he sent and received last week. The ratio of e-mails he sent to e-mails he received is 2:3. Which statement about the e-mails Desean sent and received last week **must** be true?

    Ⓐ Desean sent and received a total of 5 e-mails last week.

    Ⓑ Desean sent more e-mails than he received last week.

    Ⓒ A total of $\frac{2}{3}$ of the e-mails Desean counted from last week were e-mails he sent.

    Ⓓ For every 3 e-mails Desean received last week, he sent 2 e-mails.

20. There are 18 gallons of juice and 30 gallons of milk at a restaurant. Which statement correctly describes the unit rate of juice to milk at the restaurant?

    Ⓐ There are 0.6 gallon of juice for every 1 gallon of milk.

    Ⓑ There are 1.8 gallons of juice for every 1 gallon of milk.

    Ⓒ There is 1 gallon of juice for every 12 gallons of milk.

    Ⓓ There is 1 gallon of juice for every 3 gallons of milk.

STOP

Session 2
(Calculator)

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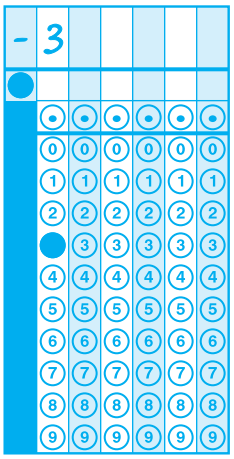

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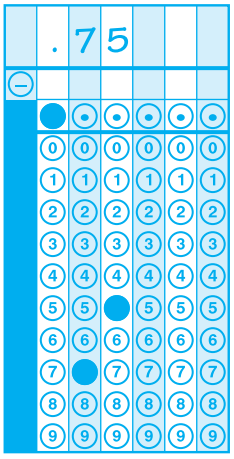


GO ON ▶

21. Ali sells her artwork at a local fair. She sells each of her paintings for $12 and each of her sculptures for $20.

Which expression could be used to model the cost of purchasing p paintings and s sculptures.

Ⓐ $32ps$

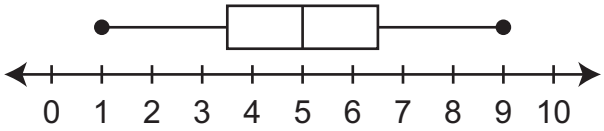
Ⓑ $32 + p + s$

Ⓒ $20p + 12s$

Ⓓ $12p + 20s$

22. Tanya records the number of bicycles parked outside her school when she arrives each day for 20 school days. She makes the box plot shown below to display her data.

Bicycles at Tanya's School



Between which 2 numbers do exactly 50% of Tanya's data points lie?

Ⓐ 1 and 3.5

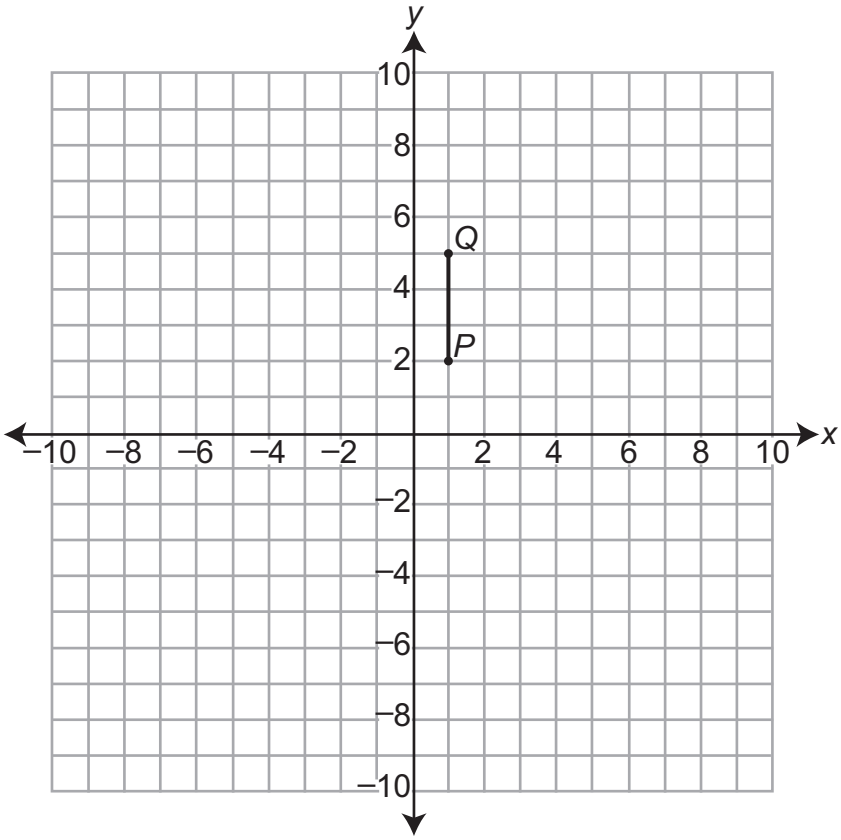
Ⓑ 3.5 and 6.5

Ⓒ 3.5 and 9

Ⓓ 5 and 6.5

GO ON ▶

23. Janet is drawing a design for a rectangular deck on a coordinate plane. The length of the deck is 30 feet and the width is 10 feet. Line segment *PQ*, as shown below, represents the width of the deck.



Next, she is going to draw line segment *QR* to represent the length of the deck.

Select **all** possible locations for point *R*.

Ⓐ (–8, 5)

Ⓑ (–4, 5)

Ⓒ (0, 5)

Ⓓ (3, 5)

Ⓔ (5, 5)

Ⓕ (10, 5)

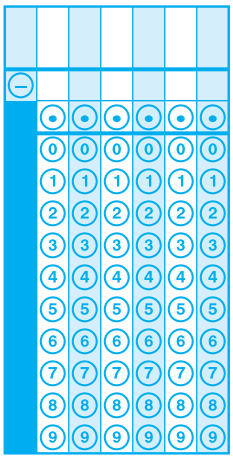
GO ON ►

24. A library charges \$0.08 for each page printed from one of its computers. Gareth spent \$2.32 to print out several magazine articles. The equation below can be used to determine the total number of pages, p, that Gareth printed.

$$0.08p = 2.32$$

What was the total number of pages that Gareth printed?

Enter your answer in the box.



GO ON ▶

25. Select each expression that is equivalent to $3(n + 6)$.

Select **all** that apply.

Ⓐ $3n + 6$

Ⓑ $3n + 18$

Ⓒ $2n + 2 + n + 4$

Ⓓ $2(n + 6) + (n + 6)$

Ⓔ $2(n + 6) + n$

GO ON ▶

26. Phil can pack 34 boxes into the back of a moving truck. Each box is 2 feet long, 2 feet wide, and 3 feet tall. Which expression could be used to find the total volume, in cubic feet, of all the boxes Phil can pack into the back of a moving truck?

Ⓐ $34 + 2^2 + 3$

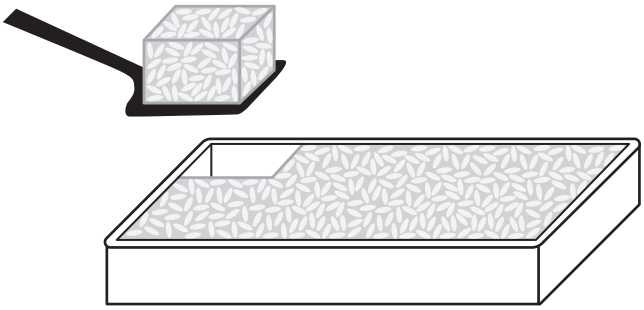
Ⓑ $34 + 2^2 \times 3$

Ⓒ $34 \times 2^2 + 3$

Ⓓ $34 \times 2^2 \times 3$

GO ON ▶

27. Megan spent $9.85 on ingredients and made one pan of cereal bars. The pan has a length of 24 inches and a width of 16 inches.



Megan needs to cut individual cereal bars from the pan. Each cereal bar should be the same size and shape and should represent a reasonable serving.

Estimate an appropriate length and width for each cereal bar and explain your assumptions.

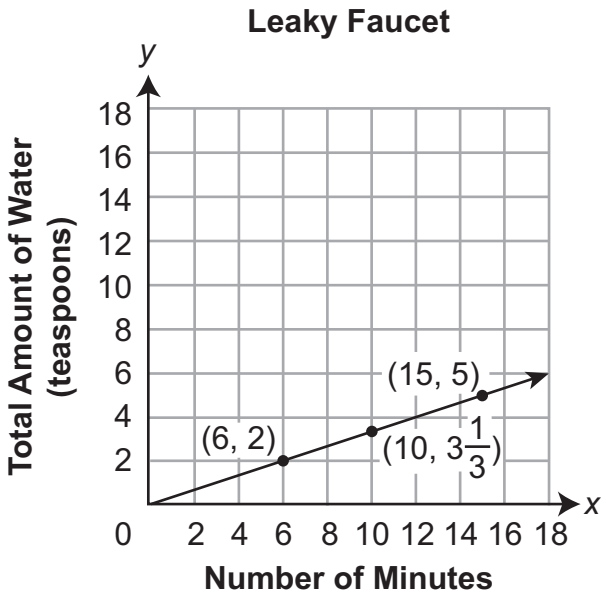
Based on your estimate, determine the amount each cereal bar will cost Megan to make. Show your work or explain your reasoning.

Enter your answers and your work or explanations in the box provided.

GO ON ►

Use the information provided to answer Part A and Part B for question 28.

28. The graph shows the number of teaspoons of water, y, that have dripped from a leaky faucet at the end of x minutes.



Part A

Which equation represents the relationship between x and y shown in the graph?

Ⓐ $y = 3x$

Ⓑ $y = x - 3$

Ⓒ $y = \frac{1}{3}x$

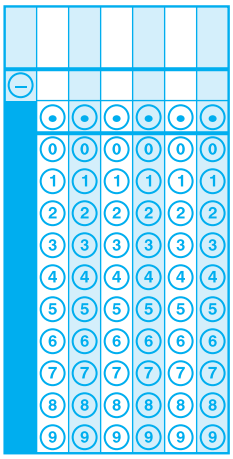
Ⓓ $y = x + 3$

GO ON ▶

Part B

Based on the relationship shown in the graph, how many teaspoons of water will have dripped from the faucet at the end of 21 minutes?

Enter your answer in the box.



GO ON ▶

Use the information provided to answer Part A and Part B for question 29.

29. The ratio of the sales tax to the amount of purchase is a fixed number in Town Q. The table shows the sales tax for a purchase of $1,200.

Town Q Tax

Purchase	Sales Tax
$1,200	$72
$2,500	?
?	$108

Part A

What is the sales tax for a purchase of $2,500?

Ⓐ $18.06

Ⓑ $34.72

Ⓒ $144.00

Ⓓ $150.00

Part B

What is the cost of an item with a sales tax of $108?

Ⓐ $432

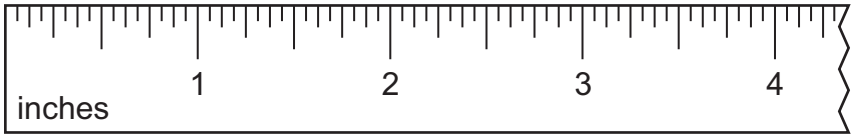
Ⓑ $648

Ⓒ $1,092

Ⓓ $1,800

GO ON ▶

30. One size of cardboard can be purchased in sheets that are $\frac{3}{16}$ inch thick. The sheets of cardboard are stacked on top of each other in packages. The height of each stack is $2\frac{1}{4}$ inches.



- Use the model of a ruler to determine the number of sheets of cardboard in a stack.
- Explain how you used the model to find your answer.
- Write an expression that can be used to determine the number of sheets of cardboard in a stack.
- Explain how your expression relates to the model.

Enter your answer, your expression, and your explanations in the box provided.

GO ON ►

Use the information provided to answer Part A and Part B for question 31.

31. The students in a club are selling flowerpots to raise money. Each flowerpot sells for $15.

Part A

Write an expression that represents the total amount of money, in dollars, the students raise from selling *x* flowerpots.

Enter your expression in the box provided. Enter **only** your expression.

GO ON ►

Part B

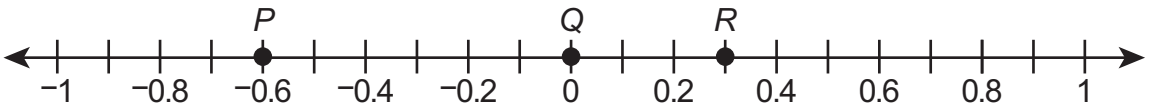
The goal of the students in the club was to raise $500. They sold 43 flowerpots. By what amount did the students exceed their goal of raising $500? Show or explain all your work.

Enter your answer and your work or explanation in the box provided.

GO ON ►

Use the information provided to answer Part A and Part B for question 32.

32. Points *P*, *Q*, and *R* are shown on the number line.



Part A

Find the distances between points *P* and *Q* and between points *R* and *Q*. Show your work or explain your answers. Refer to the number line in your explanation.

Enter your answers and your work or explanation in the box provided.

GO ON ▶

Part B

Point *S* is a different point on the number line. Point *S* and point *R* are the same distance from point Q. Explain how to determine the location of point S on the number line.

Enter your explanation in the box provided.

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Session 3
(Calculator)

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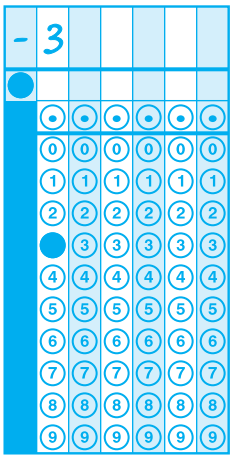

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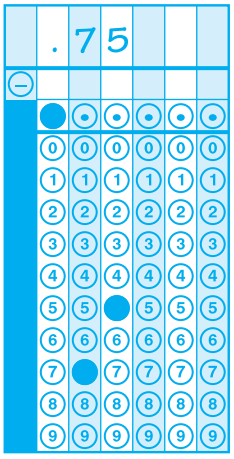
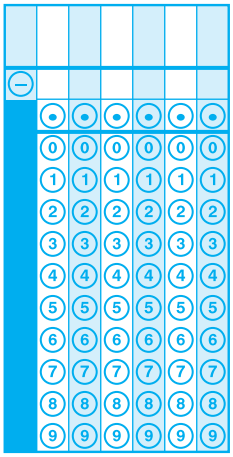


GO ON ▶

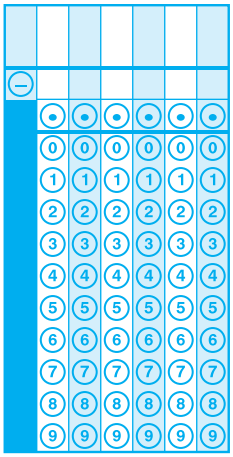
33. Based on information from previous years, 40% of the fans at each of a baseball team's games are female. At one of the team's games this year, there were 480 female fans. Based on the information from previous years, what was the total number of fans at that game?

Enter your answer in the box.



34. David is conducting a survey by going door-to-door. He visited 60 homes in 2.5 hours. At that rate, how much time, in hours, will it take David to visit 90 homes?

Enter your answer in the box.



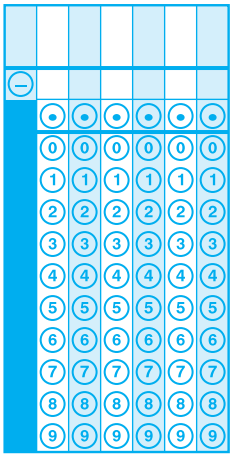
GO ON ▶

35. The formula for converting temperatures from degrees Celsius, C, to degrees Fahrenheit, F, is shown below.

$$\frac{9}{5}C + 32 = F$$

What is the temperature in degrees Fahrenheit when the temperature is 25°C?

Enter your answer in the box.



GO ON ►

36. In a certain storage unit, there are:

- 6 packages in a box,
- 10 boxes in a stack, and
- 4 stacks in a row.

Let p represent the number of packages, b represent the number of boxes, s represent the number of stacks, and r represent the number of rows for this storage unit.

Which equation represents two quantities that change in relation to one another?

Select **all** the correct equations.

Ⓐ $b = \frac{1}{10}s$

Ⓑ $\frac{1}{6}p = b$

Ⓒ $s = 4r$

Ⓓ $6p = b$

Ⓔ $10s = b$

GO ON ▶

37. Brianna's teacher asks her which of these three expressions are equivalent to each other.

Expression A: $9x - 3x - 4$

Expression B: $12x - 4$

Expression C: $5x + x - 4$

Brianna says that all three expressions are equivalent because the value of each one is $^{-}4$ when $x = 0$.

Brianna's thinking is incorrect.

Identify the error in Brianna's thinking. Determine which of the three expressions are equivalent. Explain or show your process in determining which expressions are equivalent.

Enter your answer and your explanation or process in the box provided.

GO ON ►

Use the information provided to answer Part A and Part B for question 38.

38. Greg bought 4 notebooks for $6.40.

Part A

Which equation can be used to determine the price, p, in dollars, of 1 notebook?

Ⓐ $\frac{p}{4} = 6.40$

Ⓑ $\frac{p}{6.40} = 4$

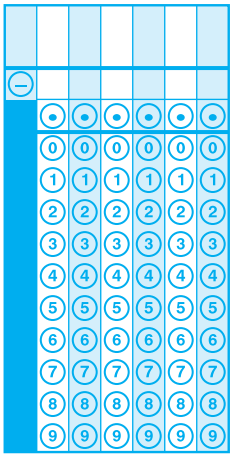
Ⓒ $4p = 6.40$

Ⓓ $6.40p = 4$

Part B

What is the price, in dollars, of 1 notebook?

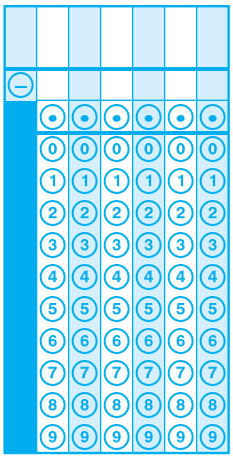
Enter your answer in the box.



GO ON ▶

39. What is the value of $a^2 + 3b \div c - 2d$, when $a = 3$, $b = 8$, $c = 2$, and $d = 5$?

Enter your answer in the box.



GO ON ▶

Use the information provided to answer Part A and Part B for question 40.

40.

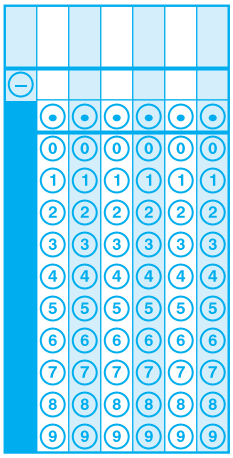
Data Set

21 30 39 43 58 67

Part A

The data set shows the number of minutes Julio practiced his trumpet on each of 6 days during a week. What is the mean number of minutes Julio practiced over these 6 days?

Enter your answer in the box.

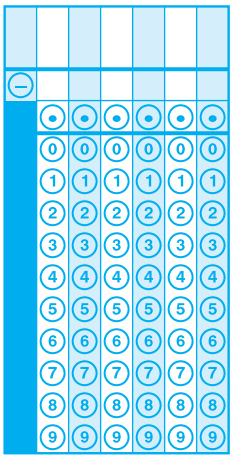


GO ON ▶

Part B

Julio practiced a 7th day during the week. The mean number of minutes he practiced over all 7 days was 45 minutes. How many minutes did Julio practice on the 7th day?

Enter your answer in the box.



GO ON ►

41. A student made two patterns to show multiplication of a decimal by powers of ten. The equations shown for both patterns are incorrect.

Pattern A

3.675 • 10 = 3.6750

3.675 • 100 = 3.67500

3.675 • 1,000 = 3.675000

Pattern B

3.675 • 0.1 = 3.0675

3.675 • 0.01 = 3.00675

3.675 • 0.001 = 3.000675

Explain why the equations in each of the patterns are false. Include in your explanation the values that should appear on the right side of each equation in both patterns to make the equations true.

Enter your explanation in the box provided.

GO ON ►

42. The variable x represents a value in the set {4, 6, 7, 8}. Which value of x makes $2(x - 4) + 3 = 7$ a true statement?

Ⓐ 4

Ⓑ 6

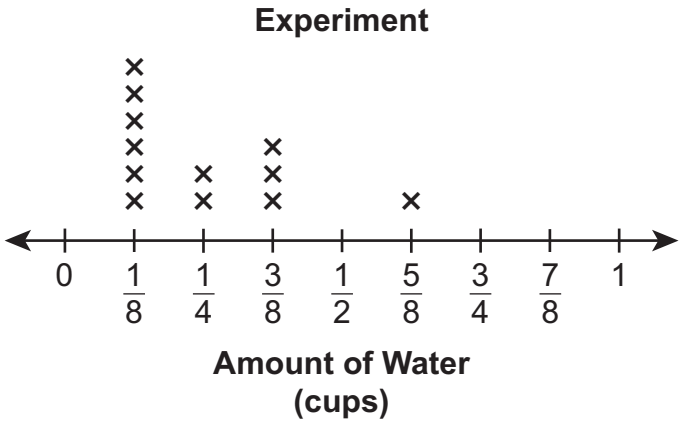
Ⓒ 7

Ⓓ 8

GO ON ▶

Use the information provided to answer Part A and Part B for question 43.

43. The line plot shows the amount of water used by 12 students during an experiment.



Part A

Write and evaluate an expression using addition and multiplication to determine the total number of cups of water used by the 12 students during the experiment. Show or explain each step you used to evaluate the expression.

Enter your expression and your work or explanation in the box provided.

GO ON ▶

Part B

The water used by the 12 students during the experiment was poured from a beaker. After the water was poured, $\frac{1}{4}$ gallon of water was left in the beaker.

What was the total number of **fluid ounces** of water in the beaker before the water was poured by the 12 students? (Use 1 gallon = 128 fluid ounces.) Show or explain each step you used to determine your answer.

Enter your answer and your work or explanation in the box provided.

STOP

STATE BOARD OF ELEMENTARY AND SECONDARY EDUCATION
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The State Board of Elementary and Secondary Education approved a Test Security Policy on December 10, 1998. This has been periodically revised.

The Board of Elementary and Secondary Education holds the test security policy to be of utmost importance and deems any violation of test security to be serious.

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1 Excerpts from *Bulletin 118*

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