

Name: _____



New York State Testing Program

2017 Common Core Mathematics Test Book 1

Grade 7

May 2–4, 2017

Released Questions

The scoring rubric for short and extended constructed-response questions can be found in the grade-level Educator Guides at <https://www.engageny.org/resource/test-guides-english-language-arts-and-mathematics>.

New York State P-12 Learning Standards Alignment

The alignment(s) to the New York State P-12 Learning Standards for Mathematics is/are intended to identify the primary analytic skills necessary to successfully answer each question. However, some questions measure proficiencies described in multiple standards, including a balanced combination of procedure and conceptual understanding. For example, two-point and three-point constructed-response questions require students to show an understanding of mathematical procedures, concepts, and applications.

These Released Questions Do Not Comprise a "Mini Test"

To ensure future valid and reliable tests, some content must remain secure for possible use on future exams. As such, this document is *not* intended to be representative of the entire test, to show how operational tests look, or to provide information about how teachers should administer the test; rather, its purpose is to provide an overview of how the test reflects the demands of the New York State P-12 Learning Standards.

The released questions do not represent the full spectrum of the standards assessed on the State tests, nor do they represent the full spectrum of how the standards should be taught and assessed in the classroom. It should not be assumed that a particular standard will be measured by an identical question in future assessments. Specific criteria for writing test questions, as well as additional assessment information, are available at <http://www.engageny.org/common-core-assessments>.

Grade 7 Mathematics Reference Sheet

CONVERSIONS

1 inch = 2.54 centimeters

1 meter = 39.37 inches

1 mile = 5,280 feet

1 mile = 1,760 yards

1 mile = 1.609 kilometers

1 kilometer = 0.62 mile

1 pound = 16 ounces

1 pound = 0.454 kilogram

1 kilogram = 2.2 pounds

1 ton = 2,000 pounds

1 cup = 8 fluid ounces

1 pint = 2 cups

1 quart = 2 pints

1 gallon = 4 quarts

1 gallon = 3.785 liters

1 liter = 0.264 gallon

1 liter = 1,000 cubic centimeters

FORMULAS

Triangle

$$A = \frac{1}{2}bh$$

Parallelogram

$$A = bh$$

Circle

$$A = \pi r^2$$

Circle

$$C = \pi d \text{ or } C = 2\pi r$$

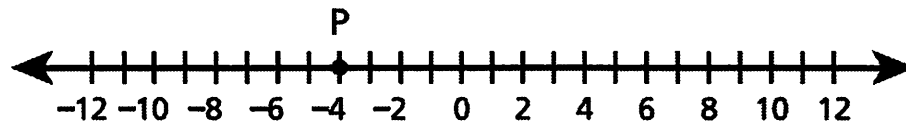
General Prisms

$$V = Bh$$

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1

Point P is shown on the number line below.



The distance between point Q and point P is $6\frac{1}{2}$ units. Which number could represent point Q?

- A $-9\frac{1}{2}$
- B $1\frac{1}{2}$
- C $2\frac{1}{2}$
- D $10\frac{1}{2}$

2

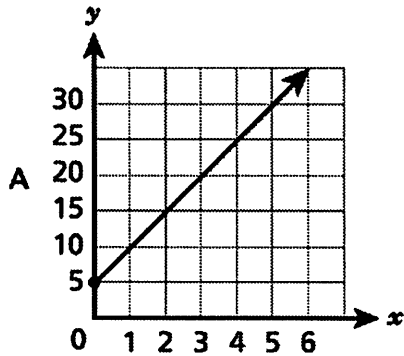
Ms. Gartland bought x number of shirts for the new members of her chorus. The cost for x number of shirts, including \$3.99 shipping, was \$77.49. Each shirt cost \$12.25. There was no sales tax on this purchase. Which equation could be used to find x ?

- A $3.99(x + 12.25) = 77.49$
- B $3.99x + 12.25 = 77.49$
- C $12.25(x + 3.99) = 77.49$
- D $12.25x + 3.99 = 77.49$

GO ON

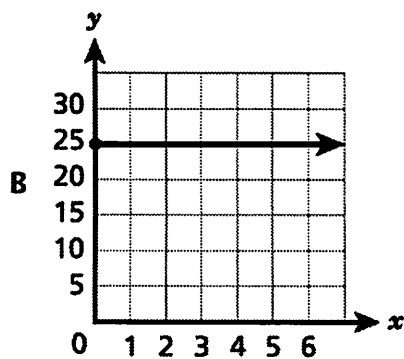
3

Which representation shows a proportional relationship between x and y ?



C

x	y
2	8
4	16
8	24
12	32



D

x	y
2	3
4	6
8	12
12	18

4

Every five years in March, the population of a certain town is recorded. In 1995, the town had a population of 4,500 people. From 1995 to 2000, the population increased by 15%. From 2000 to 2005, the population decreased by 4%. What was the town's population in 2005?

- A 4,527
- B 4,968
- C 4,995
- D 5,382

GO ON

9

The measure of one side of a square is $(s + 3)$ inches long. Which pair of expressions both represent the perimeter of this square?

$$2s + 3$$

A and

$$(s + 3)(s + 3)$$

$$2(s + 3)$$

B and

$$(s + 3)(s + 3)$$

$$4s + 3$$

C and

$$(s + 3) + (s + 3) + (s + 3) + (s + 3)$$

$$4(s + 3)$$

D and

$$(s + 3) + (s + 3) + (s + 3) + (s + 3)$$

10

Which expression has the same value as $59.2 - 84.7$?

A $84.7 - 59.2$

B $-84.7 + (-59.2)$

C $59.2 - (-84.7)$

D $59.2 + (-84.7)$

GO ON

11

Winston needs at least 80 signatures from students in his school before he can run for class president. He has 23 signatures already. He and two of his friends plan to get the remaining signatures during lunch. If each person gets the same number of signatures, which inequality can Winston use to determine the minimum number of signatures each person should get so he can run for class president?

- A $3x + 80 \geq 23$
- B $3x + 80 \leq 23$
- C $3x + 23 \geq 80$
- D $3x + 23 \leq 80$

12

In the morning, a farm worker packed 3 pints of strawberries every 4 minutes. In the afternoon, she packed 2 pints of strawberries every 3 minutes. What was the difference between her morning and afternoon packing rates, in pints per hour?

- A 5
- B 10
- C 40
- D 45

13

Which expression makes the equation true for all values of x ?

$$16x - 16 = 4(\underline{\quad ? \quad})$$

- A $4x - 4$
- B $4x - 16$
- C $2x - 2$
- D $12x - 12$

GO ON

14 Which number is equivalent to $\frac{43}{12}$?

- A 3.583
- B $3.58\bar{3}$
- C $3.\overline{583}$
- D $3.\overline{58\bar{3}}$

15 Mr. Santino needs a total of 406 forks for his restaurant. He currently has 278 forks. If each set has 12 forks, what is the minimum number of sets of forks he should buy?

- A 11
- B 12
- C 128
- D 140

16 If the expression below has a positive value, which inequality represents all possible values of x in the expression?

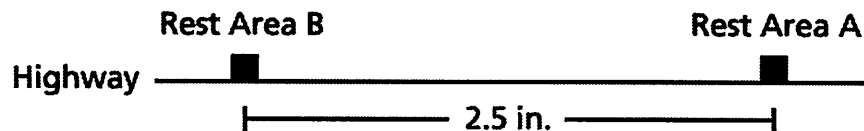
$$-3x$$

- A $x < 0$
- B $x > 0$
- C $x \leq 0$
- D $x \geq 0$

GO ON

19

Jensen stopped at rest area A along the side of the highway. His map, shown below, has a scale of 1 inch to 35 miles.



Jensen planned to stop at rest area B next. What is the actual distance, in miles, between the two rest areas?

- A 14.0
- B 37.5
- C 70.5
- D 87.5

20

Which statement describes the decimal equivalent of $\frac{7}{8}$?

- A It is a decimal with a repeating digit of 5.
- B It is a decimal with repeating digits of 75.
- C It is a decimal that terminates after 2 decimal places.
- D It is a decimal that terminates after 3 decimal places.

GO ON

21

Which expression is equivalent to the expression shown below?

$$-\frac{1}{2}\left(-\frac{3}{2}x + 6x + 1\right) - 3x$$

A $\frac{3}{2}x - \frac{1}{2}$

B $6\frac{3}{4}x - \frac{1}{2}$

C $-\frac{3}{4}x + \frac{1}{2}$

D $-5\frac{1}{4}x - \frac{1}{2}$

22

Leanne collects data throughout the basketball season and uses these data to determine the probabilities of different teams playing in the league championship game. The probabilities for her four favorite teams playing in the championship game are shown below.

- Tigers: $P = \frac{2}{3}$
- Redbirds: $P = \frac{4}{5}$
- Bulldogs: $P = \frac{3}{8}$
- Titans: $P = \frac{1}{2}$

Which of these teams is **least likely** to play in the championship game?

- A Tigers
- B Redbirds
- C Bulldogs
- D Titans

25 The initial balance of a savings account was \$275. After which transactions will the balance of the savings account be the same as the initial balance?

- A a withdrawal of \$232 followed by a deposit of \$132
- B a deposit of \$278 followed by a withdrawal of \$278
- C a withdrawal of \$115 followed by a deposit of \$312
- D a deposit of \$205 followed by a withdrawal of \$317

26 A researcher surveyed five randomly selected employees from each of four different companies about their daily commutes to work. The table shows the commute times for the surveyed employees.

COMMUTE TIMES FOR SELECTED EMPLOYEES

Amount of Time for Company 1 (minutes)	Amount of Time for Company 2 (minutes)	Amount of Time for Company 3 (minutes)	Amount of Time for Company 4 (minutes)
24	6	15	13
26	32	15	10
28	9	15	45
23	31	15	12
21	21	15	15

Based on the data, which company most likely has the longest average commute time per employee?

- A Company 1
- B Company 2
- C Company 3
- D Company 4

STOP

27 In a scale drawing of an apartment, 1 centimeter represents $2\frac{3}{4}$ feet. If the length of the kitchen is $4\frac{1}{2}$ cm on the scale drawing, what is the actual length, in feet, of the kitchen?

A $6\frac{2}{3}$

B $7\frac{1}{4}$

C $8\frac{3}{8}$

D $12\frac{3}{8}$

28 A passenger train has tickets available for 12 window seats and 8 aisle seats. The next person to buy a ticket will be randomly assigned to one of those seats. What is the probability that the next person will be assigned to an aisle seat?

A $\frac{1}{8}$

B $\frac{2}{5}$

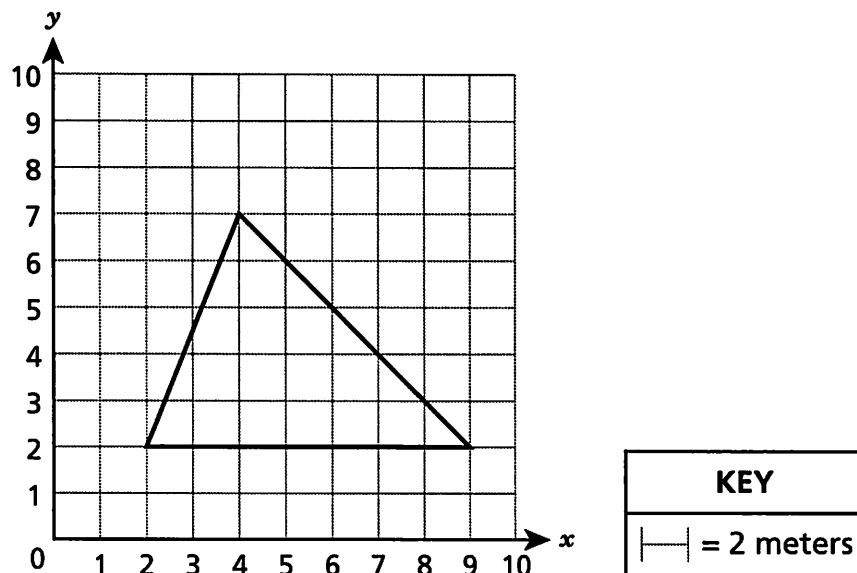
C $\frac{1}{2}$

D $\frac{2}{3}$

GO ON

32

The scale drawing of a field in the shape of a triangle is shown below.



What is the actual area, in square meters, of this field?

- A 8.75
- B 17.5
- C 35
- D 70

33

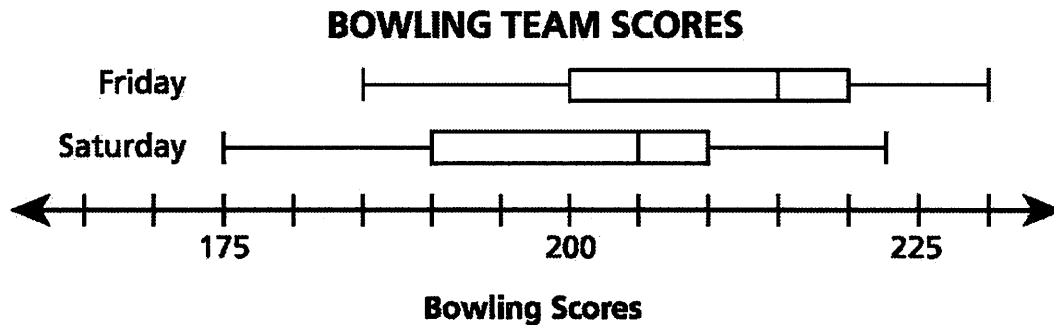
A vehicle uses $1\frac{1}{8}$ gallons of gasoline to travel $13\frac{1}{2}$ miles. At this rate, how many miles can the vehicle travel per gallon of gasoline?

- A $\frac{16}{243}$
- B $\frac{4}{3}$
- C 12
- D 13

GO ON

34

A bowling team participates in a two-day tournament and records the scores for each team member on both days. The scores for both days are represented by the box plots below.



Which conclusion can be drawn from the box plots?

- A The scores on Friday and the scores on Saturday have the same median and interquartile range.
- B The scores on Friday have a greater median and a greater interquartile range than the scores on Saturday.
- C The scores on Friday have a greater interquartile range than the scores on Saturday, but both data sets have the same median.
- D The scores on Friday have a greater median than the scores on Saturday, but both data sets have the same interquartile range.

35

Which expression is equivalent to $\frac{7}{2}h - 3\left(5h - \frac{1}{2}\right)$?

- A $-\frac{23}{2}h + \frac{3}{2}$
- B $-\frac{23}{2}h - \frac{3}{2}$
- C $\frac{37}{2}h + \frac{3}{2}$
- D $\frac{37}{2}h - \frac{3}{2}$

GO ON

36 Jeanette purchased a concert ticket on a web site. The original price of the ticket was \$75. She used a coupon code to receive a 20% discount. The web site applied a 10% service fee to the discounted price. Jeanette's ticket was less than the original price by what percent?

- A 7%
- B 10%
- C 12%
- D 28%

37 A seventh grade English Language Arts teacher wants to order books for all the seventh grade classes. He wants to determine the favorite type of book among the seventh grade students. Which sample would be the most appropriate for this survey?

- A 7 girls in each of his classes
- B every fifth student in the seventh grade
- C 1 out of 7 students in his middle school
- D all of the boys in one of his seventh grade classes

38 The amount of money in a bank account increased by 21.5% over the last year. If the amount of money at the beginning of the year is represented by n , which expression represents the amount of money in the bank account after the increase?

- A $n + 0.215n$
- B $n + 21.5n$
- C $0.215n$
- D $21.5n$

GO ON

39

Kiyo used wire fencing to form a border around a circular region in his back yard. If the radius of the circular region was 5 yards, what was the total length of the border, rounded to the nearest tenth of a yard?

A 15.7

B 31.4

C 78.5

D 157.1

40

A triangle has side lengths of $(5.5x + 6.2y)$ centimeters, $(4.3x + 8.3z)$ centimeters, and $(1.6z - 5.1y)$ centimeters. Which expression represents the perimeter, in centimeters, of the triangle?

A $11.4xz + 9.4yz$ B $11.7xy + 12.6xz - 3.5yz$ C $9.8x + 1.1y + 9.9z$ D $9.8x + 7.8y + 3.5z$ **41**

Carl wants to buy a television that costs \$500, including taxes. To pay for the television, he will use a payment plan that requires him to make a down payment of \$125, and then pay \$72.50 each month for 6 months. What is the percent increase from the original cost of the television to the cost of the television using the payment plan?

A 6%

B 12%

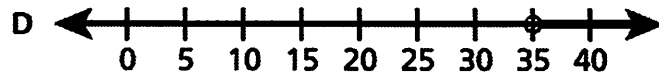
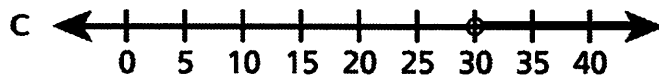
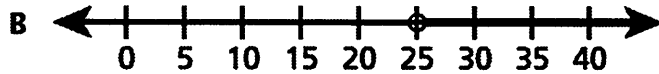
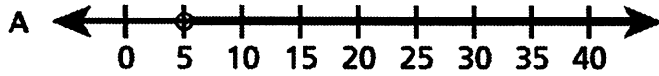
C 58%

D 89%

GO ON

42

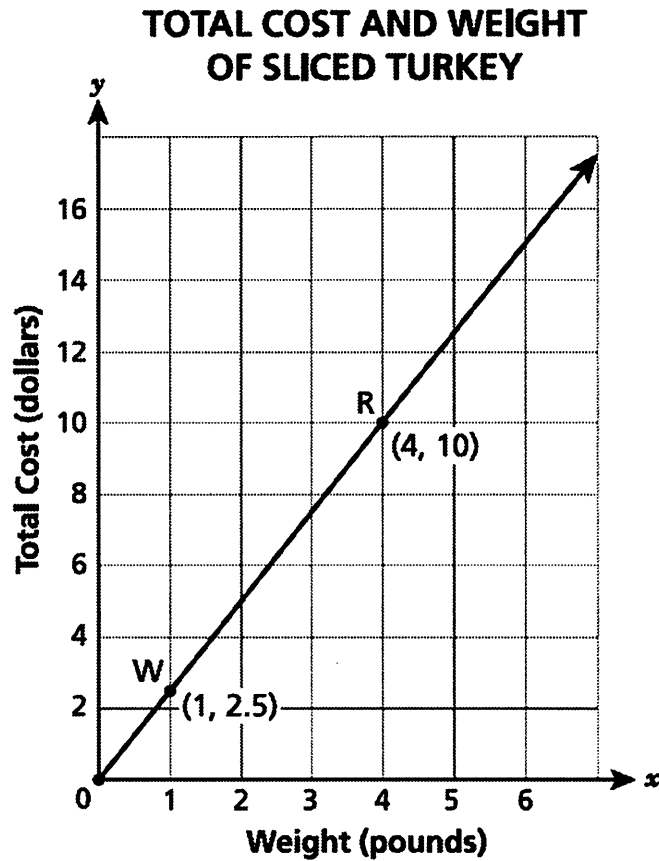
Yolanda participated in a walkathon in which each kilometer walked raised \$10 for charity. Her goal was to raise more than \$300 on Saturday and Sunday. She raised \$50 on Saturday. Which graph shows all the distances, in kilometers, that Yolanda could have walked on Sunday to reach her goal?



GO ON

43

A grocery store sells sliced turkey. The graph shows the relationship between the weight of the sliced turkey and the total cost of the sliced turkey. Two points, R and W, are labeled on the graph shown below.



Which statement about the graph is true?

- A Point R means that the unit rate is \$10.00 per pound.
- B Point R means that the unit rate is 4 pounds per dollar.
- C Point W means that the unit rate is \$2.50 per pound.
- D Point W means that the unit rate is 2.5 pounds per dollar.

GO ON

44 An item with an original price of p dollars is on sale at a 25% discount. Which expression is **not** equivalent to the price of the item with the discount?

A $(1.0p - 0.25p)$

B $(1.0 - 0.25)p$

C $0.75p$

D $0.25p$

45 A circle has a diameter of 26 units. What is the area of the circle to the nearest hundredth of a square unit?

A 81.68

B 530.93

C 2,123.72

D 8,494.87

46 The width of a rectangle is $6\frac{2}{3}$ inches. The length of the rectangle is twice its width. What is the perimeter of the rectangle?

A 20 inches

B 40 inches

C $30\frac{2}{3}$ inches

D $88\frac{8}{9}$ inches

GO ON

47

A student uses a solution that contains 16 grams of water to conduct an evaporation experiment.

- At the end of one hour, the amount of water in the solution has decreased by 3.5%.
- At the end of two hours, the amount of water in the solution has decreased by another 4.25%.

Which calculations can be used to determine the amount of water, in grams, remaining in the solution at the end of the second hour?

- A Step 1: $0.035 \times 16 = 0.56$
Step 2: $16 - 0.56 = 15.44$
Step 3: $0.0425 \times 15.44 = 0.6562$
Step 4: $16 - 0.6562 = 15.3438$
- B Step 1: $0.035 \times 16 = 0.56$
Step 2: $16 - 0.56 = 15.44$
Step 3: $0.0425 \times 15.44 = 0.6562$
Step 4: $15.44 - 0.6562 = 14.7838$
- C Step 1: $0.35 \times 16 = 5.6$
Step 2: $16 - 5.6 = 10.4$
Step 3: $0.425 \times 10.4 = 4.42$
Step 4: $16 - 4.42 = 11.58$
- D Step 1: $0.35 \times 16 = 5.6$
Step 2: $16 - 5.6 = 10.4$
Step 3: $0.425 \times 10.4 = 4.42$
Step 4: $10.4 - 4.42 = 5.98$

50 What is the value of the expression $\left(-\frac{8}{9}\right) \div \left(-\frac{2}{3}\right) \times \left(-4\frac{1}{2}\right)$?

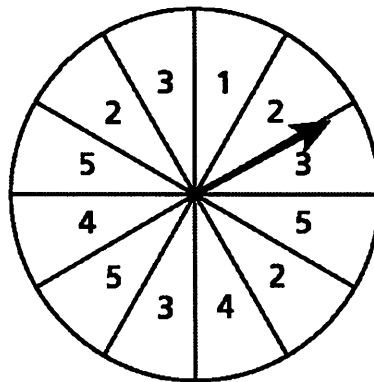
A -6

B $-\frac{8}{27}$

C $\frac{8}{27}$

D 6

51 A board game has a spinner divided into sections of equal size. Each section is labeled with a number between 1 and 5.



Which number is a reasonable estimate of the number of times the spinner will land on a section labeled 5 over the course of 150 spins?

A 15

B 25

C 40

D 60

STOP