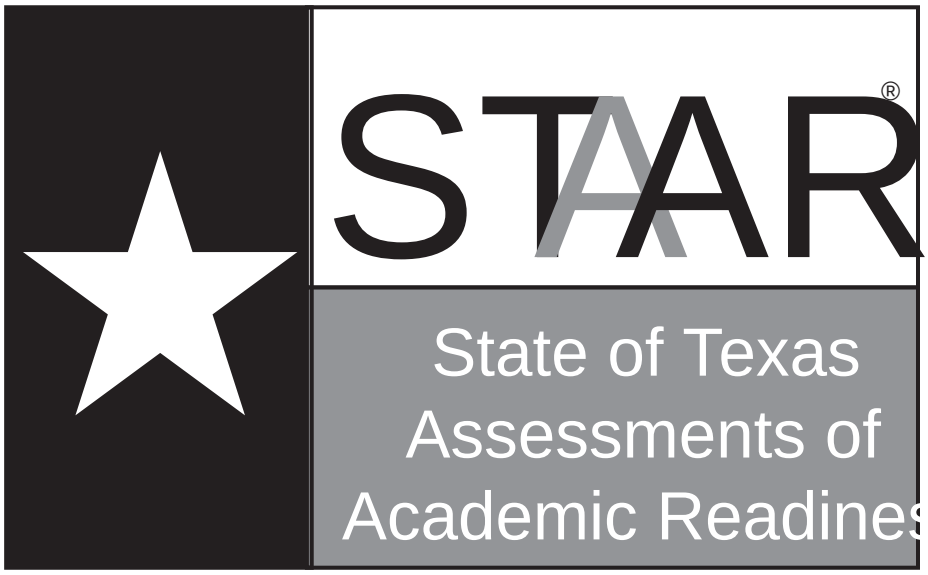

GRADE 7

Mathematics

Administered May 2021

RELEASED

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GRADE 7 MATHEMATICS REFERENCE SHEET

STATE of Texas Assessments of Academic Readiness

LINEAR EQUATIONS

Slope-intercept form	$y = mx + b$
Constant of proportionality	$k = \frac{y}{x}$

CIRCLE FORMULAS

Circle	$C = 2\pi r$	or	$C = \pi d$

AREA

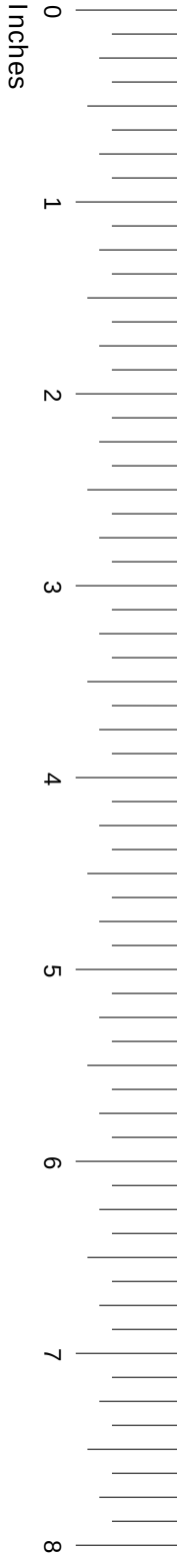
Triangle	$A = \frac{1}{2}bh$
Rectangle or parallelogram	$A = bh$
Trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$
Circle	$A = \pi r^2$

VOLUME

Prism	$V = Bh$
Pyramid	$V = \frac{1}{3}Bh$

ADDITIONAL FACTS

Pi	$\pi \approx 3.14$	or	$\pi \approx \frac{22}{7}$
Distance			$d = rt$
Simple interest			$I = Prt$
Compound interest			$A = P(1 + r)^t$



MATHEMATICS

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A survey of visitors at a national park was conducted to determine the preferred activity of each visitor to the park. Each visitor chose one activity. The survey results are shown in the table.

Preferred Activities

Activity	Number of Visitors
Camping	28
Hiking Trails	22
Water Sports	14
Biking Trails	16

Based on this information, which prediction about the preferred activity for the next 200 visitors to the park is the most reasonable?

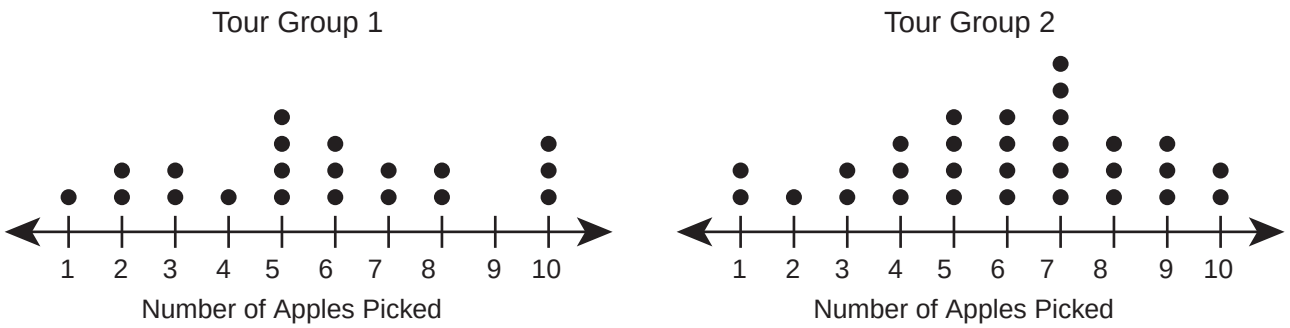
The number of visitors who prefer water sports will be 5 more than the number of visitors who prefer biking trails.

The number of visitors who prefer hiking trails will be 8 more than the number of visitors who prefer water sports.

The number of visitors who prefer camping will be 15 times the number of visitors who prefer hiking trails.

The number of visitors who prefer camping will be 2 times the number of visitors who prefer water sports.

The dot plots show the numbers of apples picked by members of two different tour groups at an orchard.



Which statement correctly compares these two data sets?

The median of the data is the same for both data sets.

The mode of the data is the same for both data sets.

The range of the data is the same for both data sets.

The distribution of the data is symmetrical for both data sets.

Members of the chess club held a bake sale to raise money. Cupcakes and cookies were sold.

- Cupcakes were sold for $1 each.
- Cookies were sold for $0.50 each.
- The members sold a total of 288 items.
- Of the items sold, $\frac{2}{3}$ were cupcakes and the remaining items were cookies.

How much money did the chess club members raise from the cookies that were sold?

$72.00

$96.00

$48.00

$45.00

Marco has two number cubes. The faces of each number cube are numbered from 1 to 6. Marco rolled the number cubes and recorded the number showing on the top face of each number cube. The results are shown in the table.

4, 2	5, 2	3, 1	3, 4	2, 6
1, 1	4, 2	2, 3	3, 3	5, 1
1, 5	5, 2	1, 5	1, 2	1, 5
2, 4	4, 2	2, 4	5, 3	2, 4

Based on these results, what is the experimental probability that the next time the number cubes are rolled, they will land with a 2 showing on the top face of one number cube and a 4 showing on the top face of the other number cube?

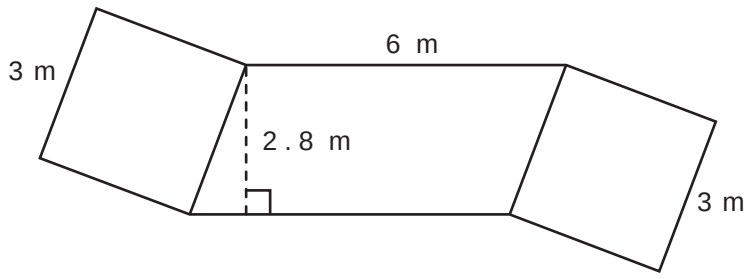
$\frac{3}{10}$

$\frac{11}{20}$

$\frac{9}{20}$

$\frac{1}{36}$

Two congruent squares and a parallelogram were used to form the figure shown.



What is the area of the figure in square meters?

25.8 m^2

40.8 m^2

34.8 m^2

28.8 m^2

What is the value of the expression $26.95 \div 5\frac{1}{2}$?

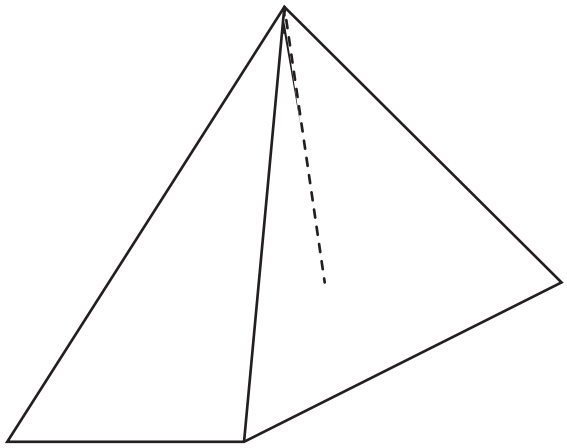
0.49

What is the solution to this equation?

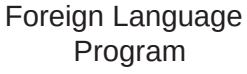
$$12x \quad 7 = 53$$

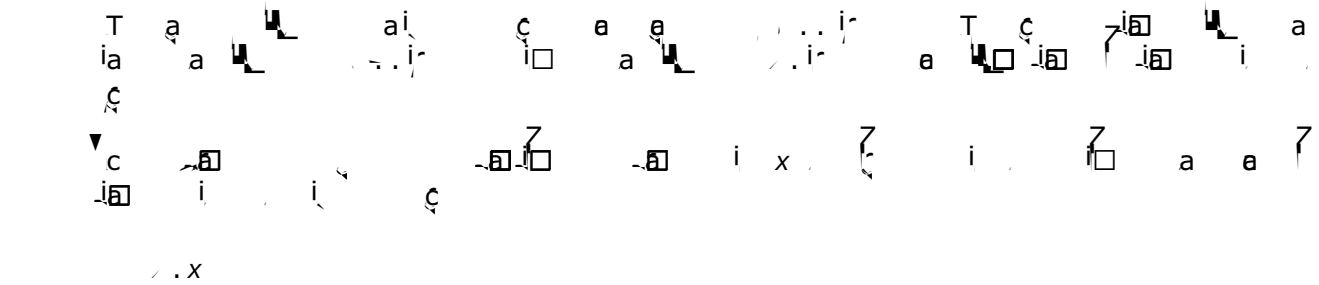
Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

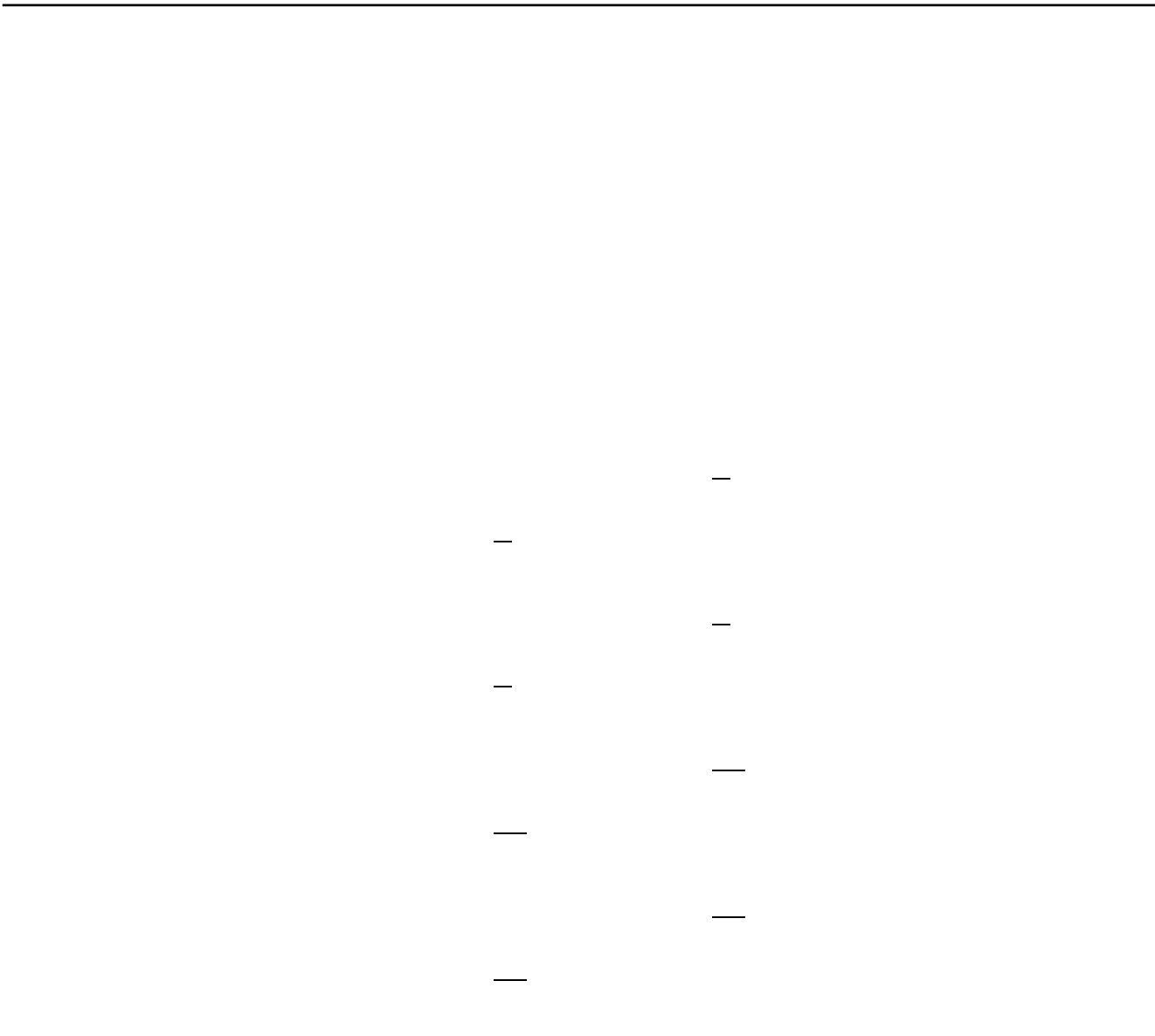
The dimensions of a rectangular pyramid are shown.

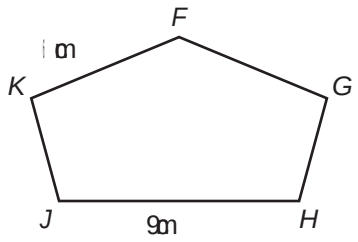


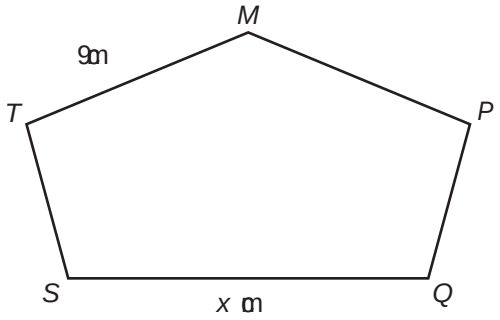
A student in a foreign language program learns 15 new words each week. Which graph best represents the relationship between x, the number of weeks the student has been in the program and y, the total number of new words the student has learned?

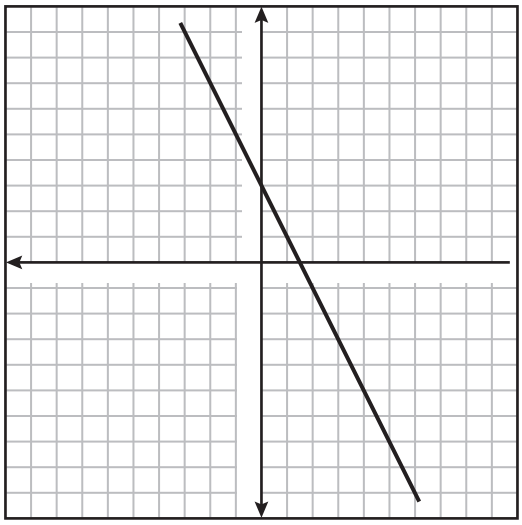




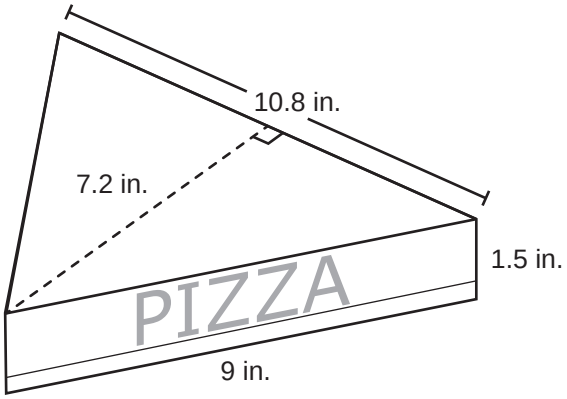



F
K
G
J
9cm
H


M
9cm
T
P
S
x cm
Q



A container in the shape of a triangular prism is used to hold a slice of pizza. The dimensions of the container are shown in the diagram.



What is the volume of the container in cubic inches?

58.32 $in.^3$

116.64 $in.^3$

19.44 $in.^3$

28.5 $in.^3$

Hector paid $105 for 6 tickets to a hockey game. Each ticket cost the same amount.

What was the cost of each ticket in dollars and cents?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

A student ran a distance of $3\frac{1}{2}$ miles each day for 5 days. Then the student ran a distance of $4\frac{1}{4}$ miles each day for the next 5 days.

What was the total distance in miles the student ran during these 10 days?

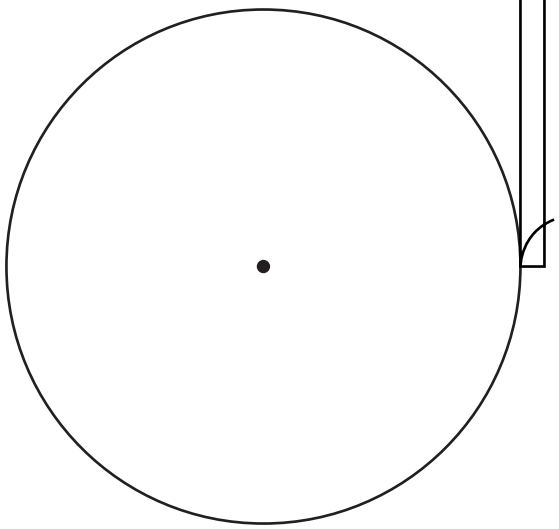
23 mi

$38\frac{3}{4}$ mi

$42\frac{1}{2}$ mi

35 mi

Use the ruler provided to measure the radius of the circle to the nearest half centimeter.



A bag contains flavored lollipops. A lollipop will be randomly selected from the bag.

- 17 lollipops are grape flavored
- 8 lollipops are cherry flavored
- 14 lollipops are watermelon flavored
- 16 lollipops are strawberry flavored

What is the probability in decimal form that the selected lollipop will be either cherry flavored or watermelon flavored?

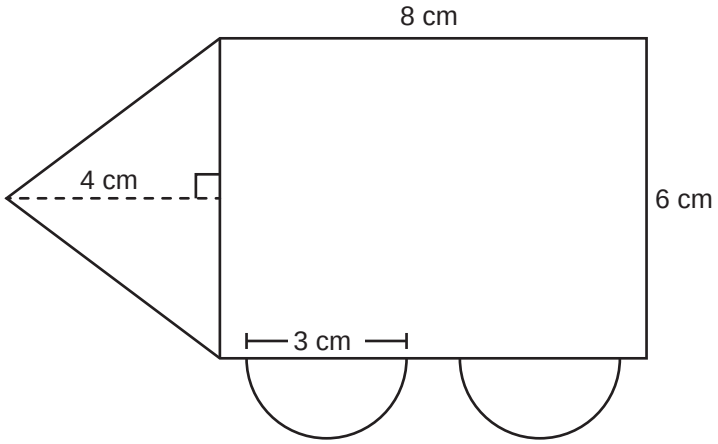
Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

The table shows Avery•s net worth statement.

Net Worth Statement

Item	Value
Bank accounts	$3,900

A rectangle, a triangle, and two congruent semicircles were used to form the figure shown.



Which measurement is closest to the area of the figure in square centimeters?

67 cm^2

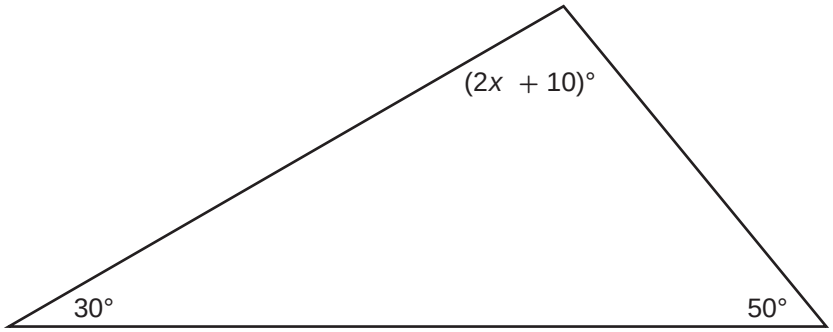
74 cm^2

79 cm^2

88 cm^2

Ms. Gonzales gathered data on the number of vowels in the fid

The angle measures of a triangle are shown in the diagram.



What is the value of x?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

What is the solution set for the inequality $4 \quad 5g > 39$?

$g > \quad 7$

$g < \quad 7$

$g < 7$

$g > 7$

The diameter of circle *X* is 15 centimeters. The diameter of circle *Y* is 20 centimeters.

Which measurement is closest to the difference between the circumference of circle *X* and the circumference of circle *Y* in centimeters?

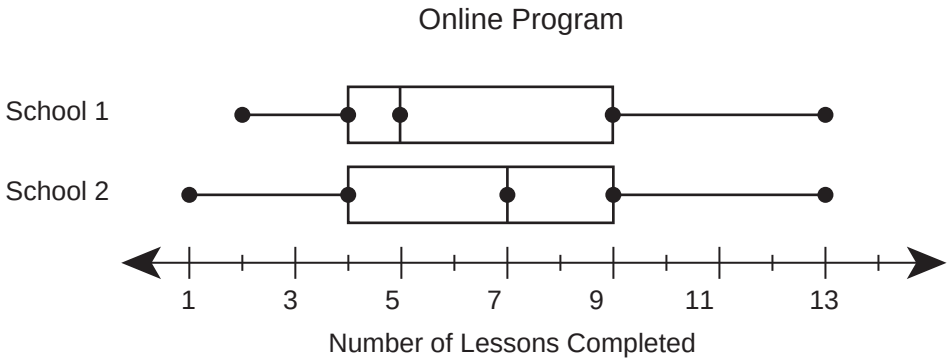
15.7 cm

7.85 cm

137 cm

31.4 cm

The box plots show the numbers of lessons completed by individual students enrolled in an online program at two different schools.



Which statement is best supported by the data in the box plots?

The range of the data for School 1 is greater than the range of the data for School 2.

The median of the data for School 2 is greater than the median of the data for School 1.

The interquartile range of the data for School 2 is greater than the interquartile range of the data for School 1.

The students at School 1 completed more lessons than the students at School 2.

Natasha has a job putting letters in envelopes to be mailed. In 1 hour she put 42 letters in envelopes.

Which equation best represents y, the total number of letters Natasha puts in envelopes in x hours if she continues at this rate?

$x = y + 42$

$y = x + 42$

$x = 42\,y$

$y = 42\,x$

BE SURE YOU HAVE RECORDED ALL OF YOUR ANSWERS ON THE ANSWER DOCUMENT.

STOP

STAAR
GRADE 7
Mathematics
May 2021