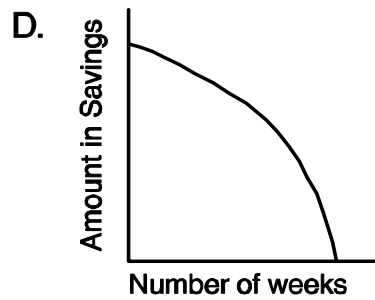
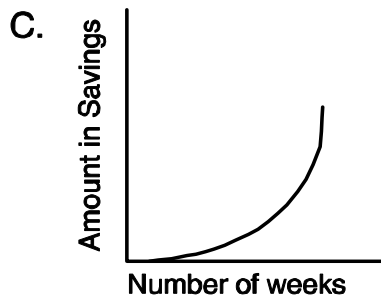
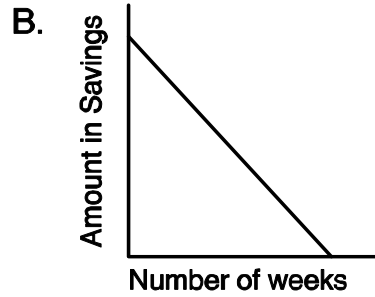
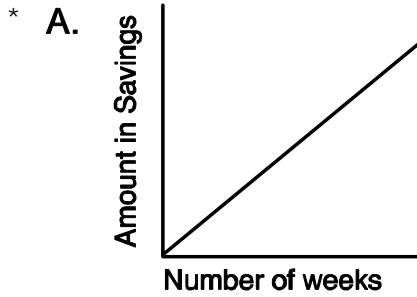


Mathematics, Grade 7 – Scoring Guide

**A4A7**

Randy put \$5 per week in a savings account and continued to do this every week. Which of the graphs best represents the relationship between the number of weeks saved and the total amount saved?



**G1B7**

Triangle  $ABC$  is similar but not congruent to triangle  $DEF$  Which is *not* true?

- A. The measure of angle  $A$  is equal to the measure of angle  $D$ .
- B. The ratio of the lengths of side  $AB$  to side  $DE$  is equal to the ratio of the lengths of side  $BC$  to side  $EF$ .
- C. The ratio of the lengths of side  $AB$  to side  $BC$  is equal to the ratio of the lengths of the side  $DE$  to side  $EF$ .
- D. The perimeter of triangle  $ABC$  is equal to the perimeter of triangle  $DEF$ . \*

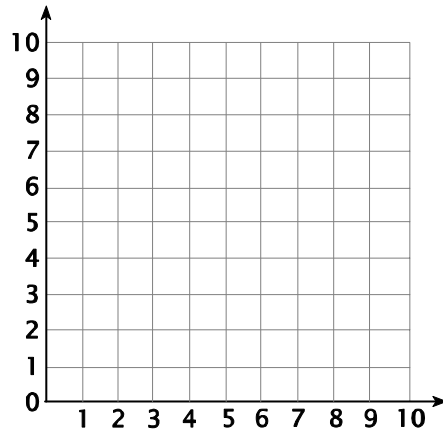
**A3A7**

Dan is 2 inches shorter than Greg. If Greg is  $g$  inches tall, which expression would give that is the sum of their heights?

- A.  $\text{sum} = g + 2g$
- B.  $\text{sum} = g + (g + 2)$
- C.  $\text{sum} = g + (g - 2)$  \*
- D.  $\text{sum} = g - (g - 2)$

**G2A7**

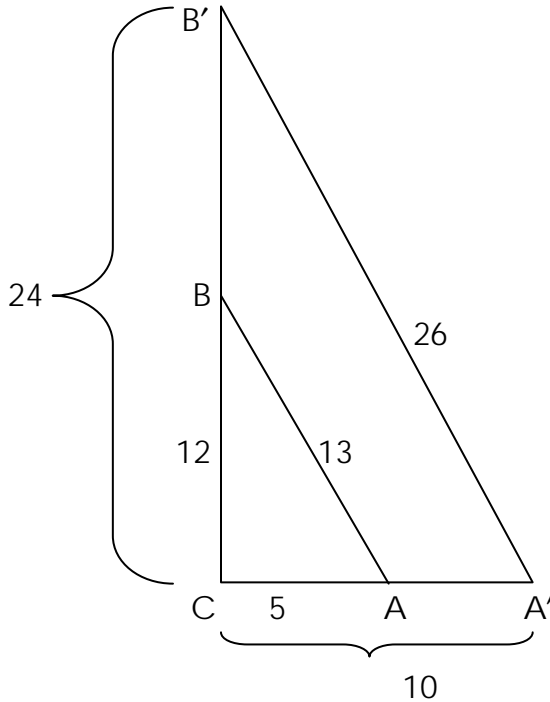
Plot the coordinates in the following order:  $(2, 0)$ ,  $(2, 2)$ ,  $(0, 2)$ , and  $(0, 0)$ . Which is **not** true?



- A. The figure formed is a square.
- B. The figure has 8 lines of symmetry. \*
- C. There is a horizontal line of symmetry for this figure.
- D. There is a vertical line of symmetry for this figure.

**G3B7**

Triangle  $A'B'C$  is the image of triangle  $ABC$  under a dilation centered at  $C$  with a scale factor of 2. How is the perimeter of triangle  $A'B'C$  related to the perimeter of triangle  $ABC$ ?



- A. The perimeter of triangle  $A'B'C$  divided by the scale factor equals the perimeter of triangle  $ABC$ . \*
- B. The perimeter of triangle  $A'B'C$  multiplied by the scale factor equals the perimeter of triangle  $ABC$ .
- C. The perimeter of triangle  $A'B'C$  plus the scale factor equals the perimeter of triangle  $ABC$ .
- D. The perimeter of triangle  $A'B'C$  minus the scale factor equals the perimeter of triangle  $ABC$ .

**G1A7**

All 4 sides of a quadrilateral are congruent and all 4 of its angles are right angles. Which statement is **not** true about this shape?

- A. The shape is a parallelogram and a rectangle.
- B. The shape is a rectangle and a rhombus.
- C. The shape is a parallelogram and a rhombus.
- D. The shape is a square and a trapezoid. \*

**A1D7**

The table shows the relationship between the number of exercise classes at the Civic Center and the cost of those classes.

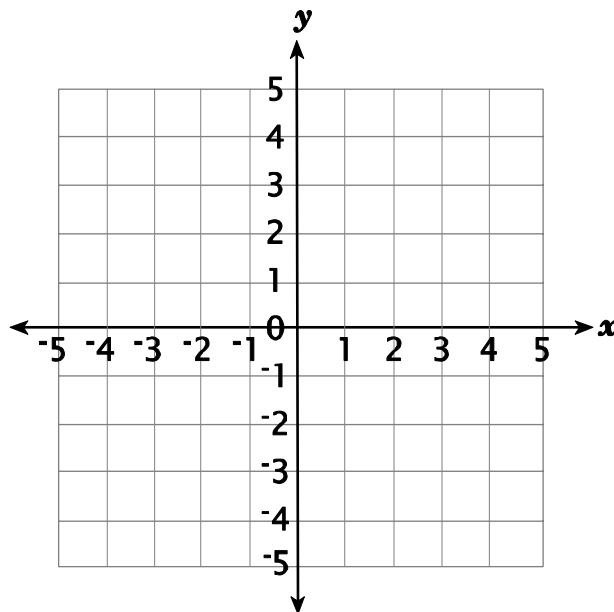
<b>Number of classes per week</b>	1	2	3	4	5
<b>Cost - \$</b>	5	9	12	14	15

Which describes the relationship between the number of classes and the cost for those classes at the Civic Center?

- A. no relationship
- B. linear
- C. non-linear \*
- D. constant

**G2A7**

Which set of points does *not* mark the vertices of a triangle?



- A. (0, 0), (0, 4), and (4, 5)
- B. (1, 0), (2, 2), and (3, 4) \*
- C. (-1, -1), (-2, -2), and (1, 2)
- D. (-2, 2), (2, -2), and (0, -2)

**A2A7**

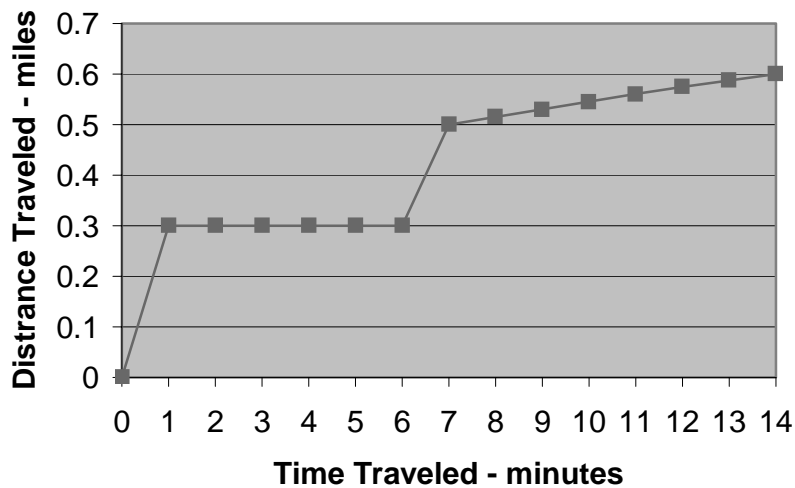
Perfecto Pizza’s one-topping large pizzas cost \$11.50 each. They charge \$0.75 for each additional topping. Which of the following shows the total cost of a large pizza?

- A.  $y = \$11.50 + \$0.75x$ , where  $y$  = the cost of the pizza and  $x$  = the number of additional toppings. \*
- B.
 

Number of extra toppings	Cost of pizza toppings
1	\$0.75
2	\$1.50
3	\$2.25
4	\$3.00
- C. The cost of a pizza = 75 cents more than the standard price.
- D.  $y = (\$11.50).75x$

**A3A7**

This graph describes Cierra’s trip from home to school. Which statement agrees with the graph?



- A. The fastest speed Cierra travels is from minute 7 to minute 12.
- B. Cierra does not get closer to the school between minute 1 and minute 6. \*
- C. The school is 14 miles from Cierra’s house.
- D. In the last 8 minutes Cierra travels farther than in the first 6 minutes.

**A2A7**

At the Strand Theater, movie tickets cost \$4 for children and \$6 for adults. Which equation describes the cost for  $c$  children's tickets and  $d$  adults' tickets?

- A.  $\text{cost} = 6c + 4d$
- B.  $\text{cost} = 6 + c + 4 + d$ .
- C.  $\text{cost} = 4(c + d) + 6$
- D.  $\text{cost} = 4c + 6d$  \*

**G3C7**

Which statement about a square and an equilateral triangle is true?

- A. A square has fewer lines of symmetry than an equilateral triangle.
- B. The number of lines of symmetry of each figure equals the number of its sides. \*
- C. A square and an equilateral triangle have the same number of lines of symmetry.
- D. A square has 2 lines of symmetry, while an equilateral triangle has 3 lines of symmetry.

**A2B7**

How many of the expressions shown are equivalent to  $3a + 3b$ ?

$3(a + b)$        $a + a + b + a + b + b$        $3a + b$        $(a)(a)(a) + (b)(b)(b)$

- A. 1
- B. 2 \*
- C. 3
- E. 4

**A3A7**

A particular rectangle keeps changing in size. The length is always 14, but the width can be any size,  $w$ .

Write an equation using  $w$  to state the perimeter of this rectangle:

---

What is the perimeter of the rectangle if its width is 10? \_\_\_\_\_

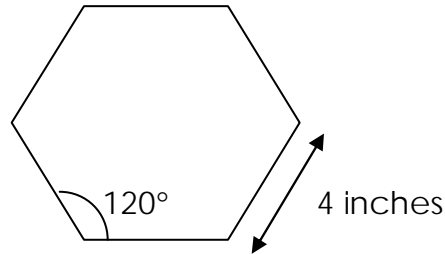
Exemplary response: an equation such as  $28 + 2w$ ;  $2(14) + 2w$ ;  $14 + 14 + w + w$ ; etc.;  
perimeter of rectangle with a width of 10 = 48

Scoring guide:

- 2 points – Correct equation **and** correct calculation of perimeter
- 1 point – Correct equation **or** correct calculation
- 0 points – Other.

**G1B7**

Zach made a picture frame in the shape of a regular hexagon. Each side of the picture frame was 4 inches long. Zach had already figured that each angle of his picture frame would have to be 120 degrees.



When Zach finished making this frame, he decided to make a bigger frame that was the same (similar) shape. This time, each side of the frame was 12 inches long. What will be the measure of each angle in the new frame if each side is three times longer than the sides of the original picture frame? Explain your reasoning.

Angle measure: \_\_\_\_\_

Exemplary response: an explanation such as as sides of similar polygons increase in length, the angle measure does not change;  $(n - 2)180/n = 120$ ; etc.; angle = 120 degrees

Scoring guide:

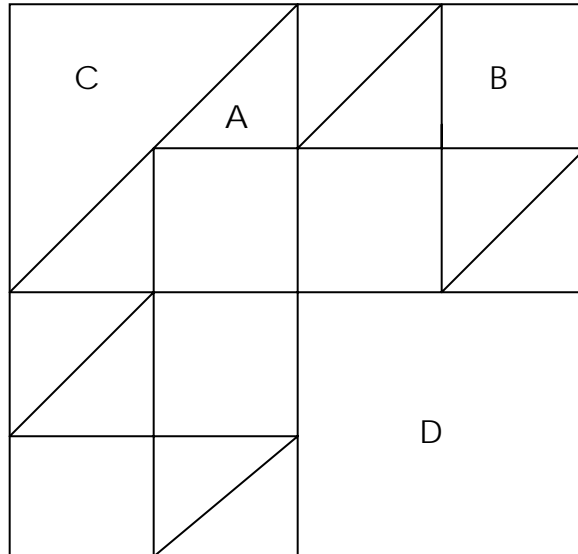
2 points – Correct explanation **and** correct calculation of angle

1 point – Correct explanation **or** correct calculation

0 points – Other.

**A1B7**

This design uses 4 different-sized tiles. Tiles A and C are isosceles right triangles.



Complete the table to show the fractional part of the whole design each tile represents:

Tile Piece	A	B	C	D
Fractional Part	$1/32$		$1/8$	

Describe how the fractional parts change in size as you move from A to D through the chart.

Exemplary response: table should be completed with  $\frac{1}{16}$ ,  $\frac{1}{4}$ ; descriptions of the change in size of the fractional parts as you move from A to D through the table could include – each denominator is twice the previous; each fraction is half the size of the previous

Scoring guide:

2 points – Correct completion of table (  $\frac{1}{16}$ ,  $\frac{1}{4}$ ) **and** correct explanation (for example, each fraction is twice the previous fraction)

1 point – Correct table **or** correct explanation

0 points – Other.

**A1B7**

What rule determines what happens to the number in the input column that results in the number in the output column? State your rule in words or symbols and use it to find the output if the input is 80.

Use the table to answer question

Input	Output
2	4
3	9
4	16
5	?

Rule: \_\_\_\_\_

Input = 80, Output = \_\_\_\_\_

Exemplary response: rule descriptions could include output = input x input; input squared = output; multiply the input by itself; etc.; the output for an input of 80 is 6400.

Scoring guide:

2 points – Valid rule **and** correct calculation for an input of 80

1 point – Valid rule **or** correct calculation

0 points – Other.

**A1B7**

The drama students tried to determine how many tickets to print for the upcoming play. Because they needed to know how many seats were available for the performance, Mr. Sproat gave them the table and equation shown.

**SEATING AVAILABLE**

Row Number	1	2	3	4	5	6	7
Number of seats in each row	20	26	32	38	44	50	56

Equation: Let  $r$  = the row number.  
 Let  $n$  = the number of seats in row  $r$ .  
 Then,  $n = 20 + 6(r - 1)$

Use either of the representations Mr. Sproat provided to identify the pattern in the seating and describe that pattern in words.

Seating pattern:

Exemplary response: a valid description of the pattern would include add 6 to the previous number of seats; take the number of rows, subtract 1, multiply by 6, and add 20; etc.

Scoring guide:

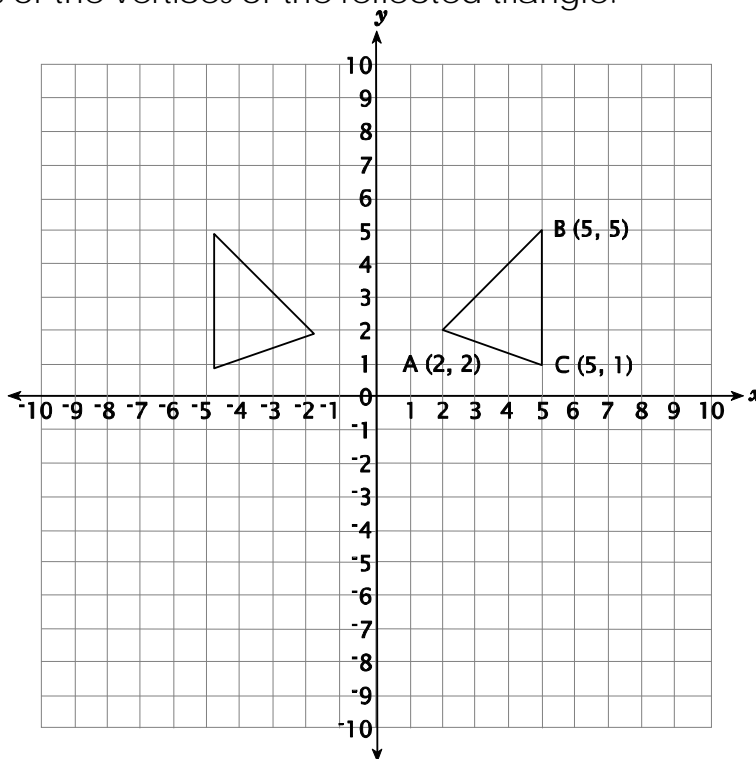
2 points – Valid verbal description of the pattern

1 point – Partial description of recursive formula

0 points – Other.

### G3A7

On this grid, draw the reflection of triangle  $ABC$  across the  $y$ -axis. Label the coordinates of the vertices of the reflected triangle.



Exemplary response: Vertices should be  $(-5, 5; -5, 1; -2, 2)$

Scoring guide:

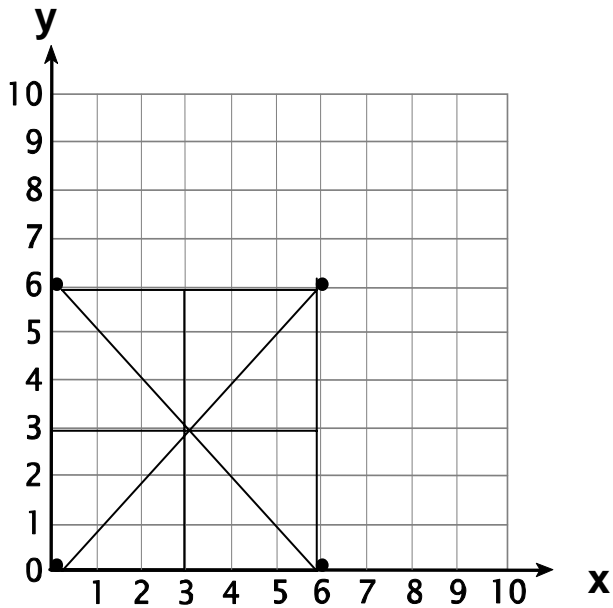
2 points – Correct drawing **and** correct labeled vertices

1 point – Correct drawing **or** correct labeled vertices

0 points – Other.

**G2A7**

Plot the coordinates  $(0, 0)$ ,  $(6, 0)$ ,  $(6, 6)$ , and  $(0, 6)$ .



Identify the shape formed by connecting these points with segments in the order the points are listed:

\_\_\_\_\_

Draw all lines of symmetry on the figure plotted.

Exemplary response: Plotting the points should produce a square which should have 4 lines of symmetry; a connected plotted points form a square.

Scoring guide:

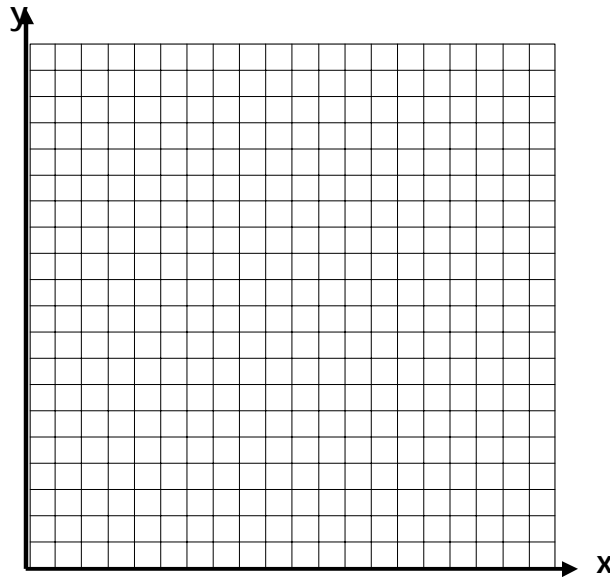
- 2 points – Correct plotting of points and identifying “square” **and** correct lines of symmetry (4 total)
- 1 point – Correct chart **or** correct choice
- 0 points – Other.

**A1D7**

This table gives data about the squaring of numbers:

<b>Number</b>	1	2	3	4	5	6
<b>Square of the number</b>	1	4	9	16	25	36

On the grid, plot the data in this table:



Explain whether the graph is linear or non-linear:

Exemplary response: Grid should include correct plotting of coordinates (1,1), (2, 4), (3, 9) (5, 25), and (6, 36) which produce a parabolic curve which is non-linear; and explanation should include that it is not a linear graph as the graphed points do not form a line; there is a constant change in the x-value of 1 each time, but the y-value is not a constant change so it is not linear; or other valid response.

Scoring guide:

- 2 points – Correct plotting of points and correct explanation of a non-linear graph
- 1 point – Correct plotting of points, identifying the graph as non-linear, **or** correct explanation
- 0 points – Other.