

**Accelerated Math II Summer Review Packet  
2019 -2020**



NAME: \_\_\_\_\_

**DUE: THE FIRST DAY OF SCHOOL**

The problems in this packet are designed to help you review topics from previous mathematics courses that are essential to your success in Integrated Math III. **You are expected to bring this completed packet to class on the first day of school.** In addition, this packet will count as part of your first quarter grade. **Upon returning, you will be ASSESSED on the content of this packet.** All contents outlined in the packet are Accelerated Math II objectives. Neatly **SHOW YOUR WORK** on a separate sheet of paper.

**Q1:** Solve for x.

$$2(x + 5) - 4x + 8 = 16$$

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**Q2:** Is  $(-3, 11)$  a solution to the system of equations shown below?

Explain your answer and support your answer with your work on the scratchpad.

$$x - 3y = 36$$

$$3x + 4y = 48$$

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**Q3:** Use the definition of exponential notation to demonstrate why  $2^3 \cdot 4^3 = 2^9$ ?

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**Q4:** Determine whether the ordered pair is a solution of  $4x + y = 20$   
 $(6, -4)$

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**Q5:** Solve for  $x$ .

$$2(x + 5) - 4x + 8 = 16$$

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**Q6:** Solve the system of linear equations by SUBSTITUTION. Check your solution (6 Pts)

$$x + y = 7$$

$$y = 2x + 4$$

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**Q7:** Solve the system of linear equations by ELIMINATION. Check your solution (6 Pts)

$$3x - y = 2$$

$$2x - y = 3$$

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**Q8:** Determine whether the system of linear equations has one solution, infinitely many solutions, or no solution.

Explain your reasoning. (4 Pts)

$$y = 15x + 1$$

$$y = 15x + 2$$

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**Q9:** Solve the system of linear equations by SUBSTITUTION. Check your solution (6 Pts)

$$y = x + 3$$

$$y = 4x - 6$$

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**Q10:** What is the value of  $3 \frac{1}{3}$  divided by  $\frac{2}{3}$ ?

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**Q11:** You can rent a video game for \$3.50 Your total cost in rentals for the month was \$31.50 **Write and solve an equation** to find the number of video game rentals for the month.

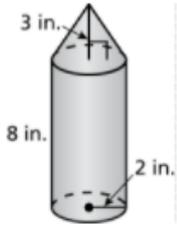
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**Q12:** Solve the Equation.

$$8m + 2 + 4m = 2(6m + 1)$$

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**Q13:** The figure below is a diagram for making a tin lantern. (14 Points)

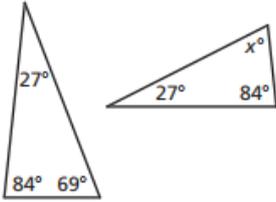


What is the approximate volume, to the nearest whole number, in cubic inches, of the entire lantern? Model your response and explain your reasoning.

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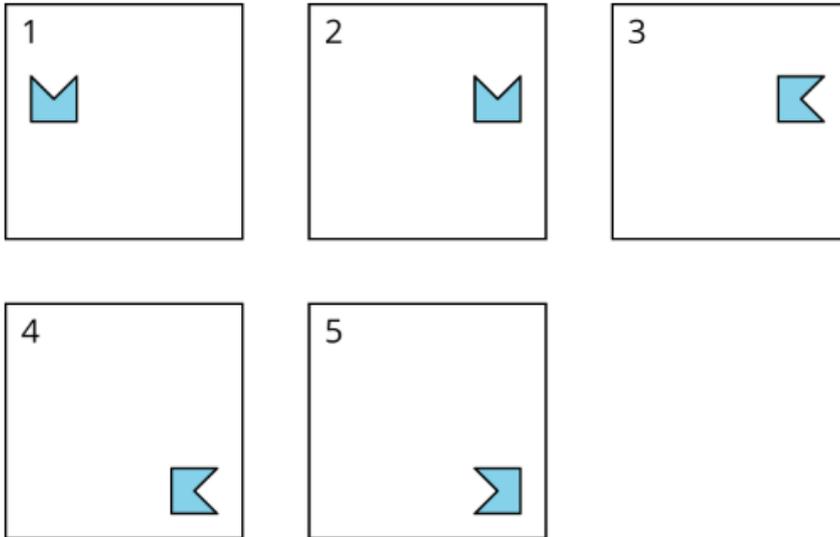
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**Q14:** Tell whether the triangles are similar. Explain. (6 Points Each)



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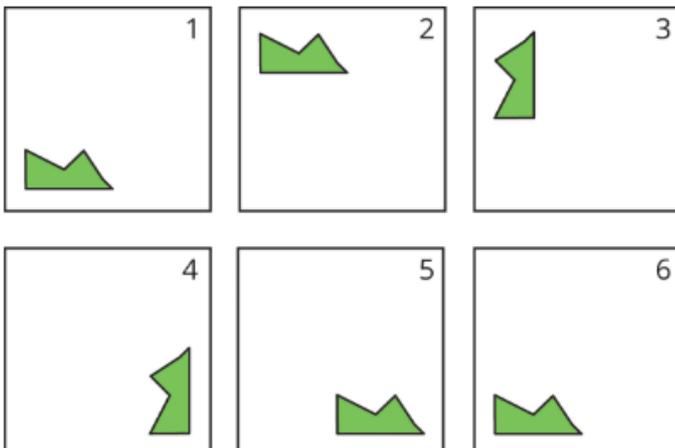
**Q15:** These five frames show a shape's different positions.



Describe how the shape moves to get from its position in each frame to the next.

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**Q16:** The six frames show a shape's different positions.



Describe how the shape moves to get from its position in each frame to the next.

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**Q17:** Line  $n$  passes through the points  $(-3, -7.5)$  and  $(2, -5)$ . Tahlia determined that the equation of line  $n$  is  $y = 0.5x$ . Explain the error Tahlia made while determining her equation. Be sure to include the correct equation in your explanation.

**Answer**

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**Q18:** A continuación, se muestra una ecuación.

$$3(x - 2) + 7x = \frac{1}{2}(6x - 2)$$

¿Cuántas soluciones, si es que existe alguna, tiene la ecuación?

**Muestre su trabajo.**

**Respuesta** Número de solución(es) \_\_\_\_\_

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**Q19:** The volume of a cone is  $6\pi$  cubic inches. What is the volume of a cylinder having the same base and same height? Explain your reasoning.

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**Q20:** Subtract  $5x^2 + 2x - 11$  from  $3x^2 + 8x - 7$ . Express the result as a trinomial.

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**Q21:** Look at the work for the following function. What mistake did they make when using the quadratic formula to find the solutions? What are the real solutions to the function?

$$f(x) = x^2 - 9x + 20$$

$$\text{Step 1: } \frac{9 \pm \sqrt{-9^2 - 4(1)(20)}}{2(1)}$$

$$\text{Step 2: } \frac{9 \pm \sqrt{-81 - 80}}{2}$$

$$\text{Step 3: } \frac{9 \pm \sqrt{-161}}{2}$$

Step 4: There are no real solutions.

#### Graded Rubric

Criteria	Rating	
Criteria Name 1  Mistake	<b>Rating 1</b>  The student does not identify the mistake.	<b>Rating 2</b>  The student states that -9 to the second power is positive 81
Criteria Name 2  Correct Answer 1	<b>Rating 1</b>  The student did not get 4 for one of the solutions.	<b>Rating 2</b>  The student did get 4 for one of the solutions.
Criteria Name 3  Correct Answer 2	<b>Rating 1</b>  The student did not get 5 for one of the solutions.	<b>Rating 2</b>  The student got 5 for one of the solutions.

**Q22:** Look at the work for the following function. 1) Identify the mistake that was made when using the quadratic formula to find the solutions. 2) State the real solutions to the function.

$$f(x) = x^2 - 9x + 20$$

$$\text{Step 1: } x = \frac{9 \pm \sqrt{-9^2 - 4(1)(20)}}{2(1)}$$

$$\text{Step 2: } x = \frac{9 \pm \sqrt{-81 - 80}}{2}$$

$$\text{Step 3: } x = \frac{9 \pm \sqrt{-161}}{2}$$

$$\text{Step 4: } x = \frac{9 \pm i\sqrt{161}}{2} \text{ is the solution.}$$

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**Q23:** A function is given.

$$f(x) = 2^x + 3$$

What is the value of  $f(-2)$  ?

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**Q24:** *Simplify*

$$a) (-3e^{2x})^2$$

$$b) \frac{15e^{7x}}{3e^{-5x}}$$

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**Q25:** Multiply the polynomials  $(x + 3)(2x - 4)$ . What is the product in the form  $ax^2 + bx + c$ ?  
Enter your answers in the boxes.

$$a = \boxed{\phantom{000}}$$

$$b = \boxed{\phantom{000}}$$

$$c = \boxed{\phantom{000}}$$

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**Q26:** Factor the following expression:

$$x^2 - 15x + 56 = \boxed{\phantom{000000}}$$

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**Q27:** Factor the following expression:

$$16x^2 - 25 = \boxed{\phantom{000000}}$$

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**Q28:** Simplify  $(5p^2 - 3) + (2p^2 - 3p^3)$ . Write answer in standard form.

$$\boxed{\phantom{000000}}$$

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**Q29: Part A**

**Keisha is working to complete her summer reading in one week. This is so she can chill for the remainder of the summer. She read  $(2x^2 + 5x - 3)$  pages of *Unbroken* on Monday,  $(5x - 3)$  pages on Tuesday, and  $(6x^2 + 2)$  pages on Wednesday. How many pages did she read in three days?**

$$\boxed{\phantom{000000}}$$

**Part B**

***Yay! Keisha read the entire book in a week! If the book has  $14x^2 + 12x - 3$  pages in all, how many pages did she read during the rest of the week?***

$$\boxed{\phantom{000000}}$$

**Part C**

Let  $x = 3$ . How many pages does the book have?

$$\boxed{\phantom{000000}}$$

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**Q30:** Solve the quadratic equation. (Put the smaller digits in the first box and the larger digits in the second box so you get credit for the right answers!)

$$x^2 + 16x + 63 = 0$$

So,  $x =$   and  $x =$

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**Q31:** Simplify  $(5a + 4) - (5a + 3)$ .

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**Q32:** Consider the following sequence and type the next number in the sequence.

55, 48, 41, 34 , .

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**Q33:** Simplify.

$$30v^4w^3 - 12v^4w^3$$

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**Q34:** Simplify. Multiply.

$$4n(3n^2 + 6n - 9)$$

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**Q35:** Solve  $x^2 + 12x + 20 = 0$

$x =$    $x =$

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**Q36:** Solve the quadratic equation.

$$x^2 - 2x - 63 = 0$$

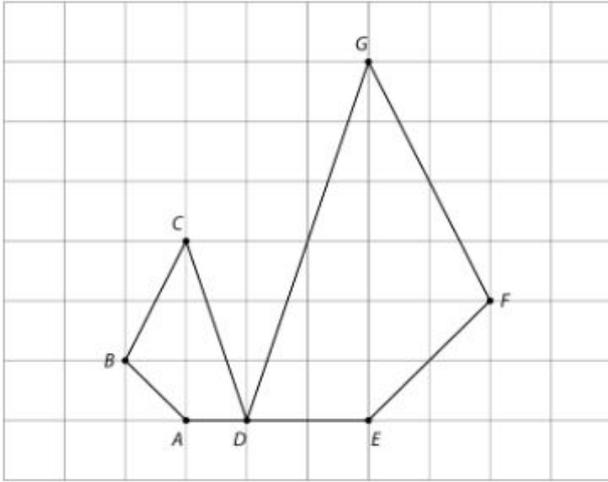
So,  $x =$   and  $x =$

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**Q37:** Elena gives the following sequence of transformations to show that the two figures are similar by transformation  $ABCD$  into  $EFGD$ .

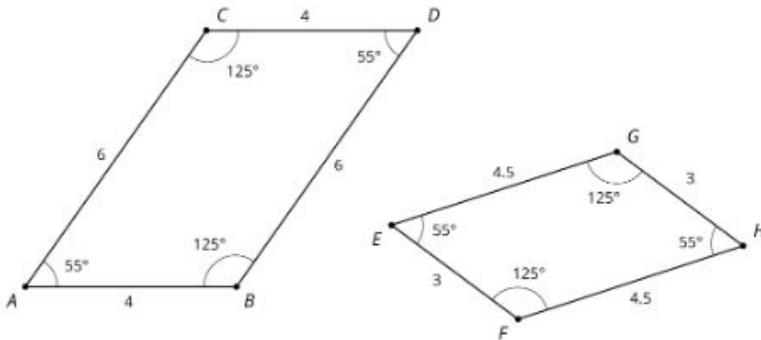
1. Dilate using center  $D$  and scale factor 2.
2. Reflect using the line  $AE$ .

Is Elena's method correct? If not, explain how you could fix it.



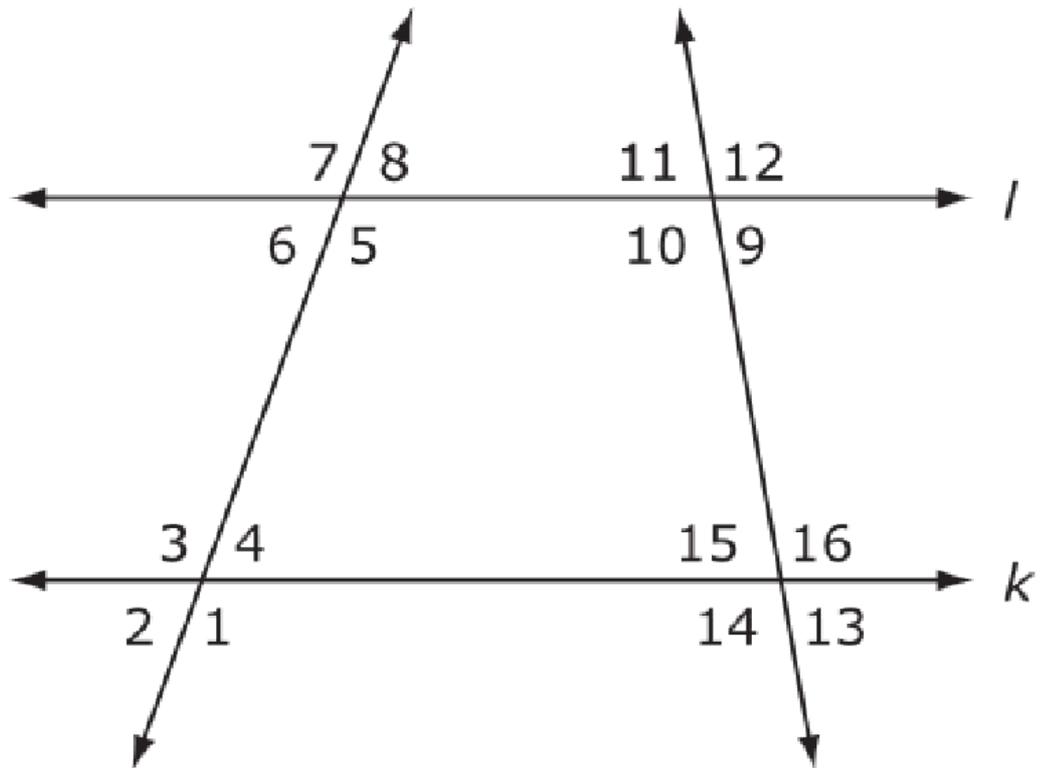

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**Q38:** Explain how you know these two figures are similar.




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**Q39:** In the figure shown, lines  $k$  and  $l$  are parallel.

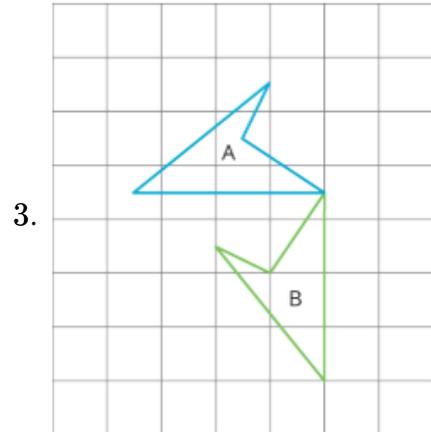
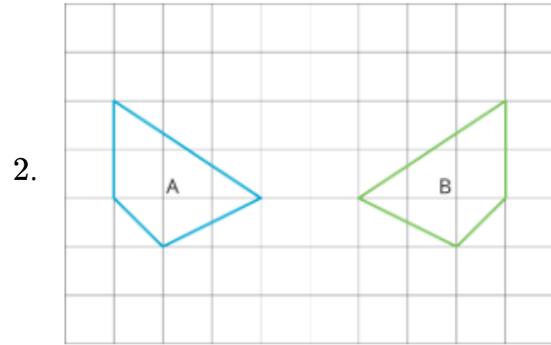
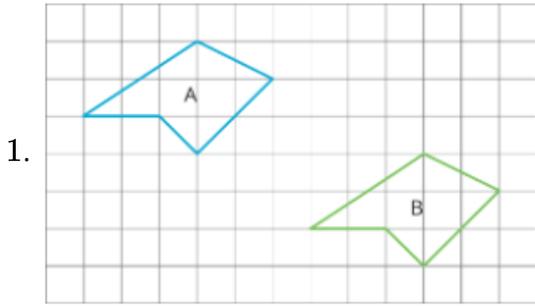


Amy claims that  $m\angle 4 + m\angle 5 = m\angle 10 + m\angle 9$ .

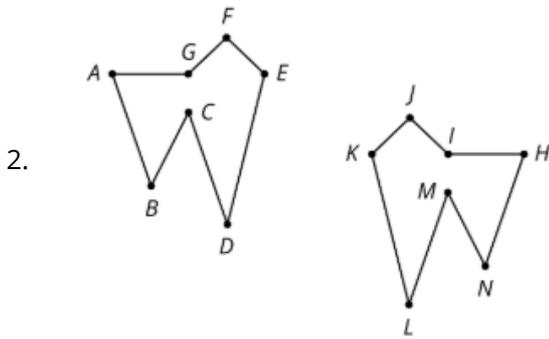
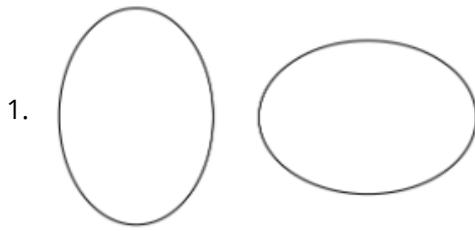
Is Amy correct? Use appropriate mathematical language to justify your response.

Enter your answer and your justification in the space provided.

**Q40:** For each pair of polygons, describe the transformation that could be applied to Polygon A to get Polygon B.



**Q41:** For each pair of shapes, decide whether or not it appears that the two shapes are congruent. Explain your reasoning. (Use Scratchpad)

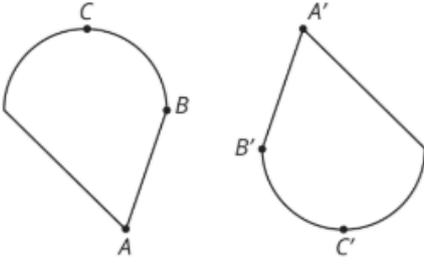



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**Q42:** Jill writes  $2^3 \cdot 4^3 = 8^6$  and the teacher marked it wrong. Explain Jill's error.

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**Q43:** These two figures are congruent, with corresponding points marked.



1. Are angles  $ABC$  and  $A'B'C'$  congruent? Explain your reasoning.
2. Measure angles  $ABC$  and  $A'B'C'$  to check your answer.

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**Q44:** James said that  $(9^9) \cdot (9^{-20}) = 9^{-29}$ . Is he correct? Justify your answer.

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**Q45:** The two equations shown below represent different functions.

$$\text{Function } P : y = \frac{3}{x} + 2$$

$$\text{Function } Q : y = \frac{1}{3}x + 2$$

Identify each function as linear or nonlinear. State a reason why each function is linear or nonlinear.

**Function  $P$**  \_\_\_\_\_

**State your reason.**

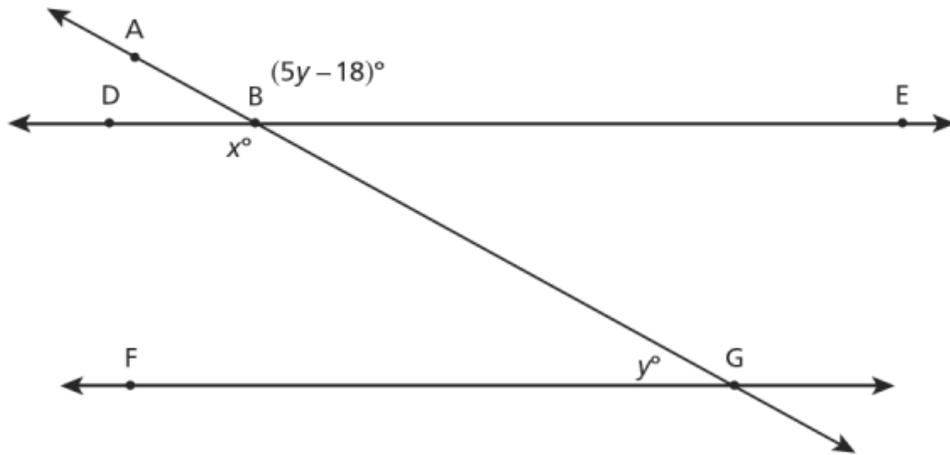
**Function  $Q$**  \_\_\_\_\_

**State your reason.**

**Graded Rubric**

Criteria	Rating			
Criteria Name 1	<p><b>Rating 1</b></p> <p>A three-point response includes the correct solution(s) to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none"> <li>indicates that the student has completed the task correctly, using mathematically sound procedures</li> <li>contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures</li> <li>may contain inconsequential errors that do not detract from the correct solution(s) and the demonstration of a thorough understanding</li> </ul>	<p><b>Rating 2</b></p> <p>A two-point response demonstrates a partial understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none"> <li>appropriately addresses most but not all aspects of the task using mathematically sound procedures</li> <li>may contain an incorrect solution but provides sound procedures, reasoning, and/ or explanations</li> <li>may reflect some minor misunderstanding of the underlying mathematical concepts and/or procedures</li> </ul>	<p><b>Rating 3</b></p> <p>A one-point response demonstrates only a limited understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none"> <li>may address some elements of the task correctly but reaches an inadequate solution</li> <li>and/or provides reasoning that is faulty or incomplete</li> <li>exhibits multiple flaws related to misunderstanding of important aspects of the task, misuse of mathematical procedures, or faulty mathematical reasoning</li> <li>reflects a lack of essential understanding of the underlying mathematical concepts</li> </ul> <p>may contain the correct solution(s) but required work is limited</p>	<p><b>Rating 4</b></p> <p>A zero-point response is incorrect, irrelevant, incoherent, or contains a correct solution obtained using an obviously incorrect procedure. Although some elements may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.</p>

**Q46:** In the figure below, line  $DE$  is parallel to line  $FG$ , with transversal  $AG$ .



Write and solve a system of linear equations to determine the values of  $x$  and  $y$ .

**Show your work.**

**Answer**  $x =$  \_\_\_\_\_ and  $y =$  \_\_\_\_\_

**Q47:** Solve the system of linear equations by ELIMINATION. Check your solution (6 Pts)

$$2x - y = -2$$

$$x - 2y = -16$$

**Q48:** Solve the system of equations shown below.

$$2x - 6y = -12$$

$$x + 2y = 14$$

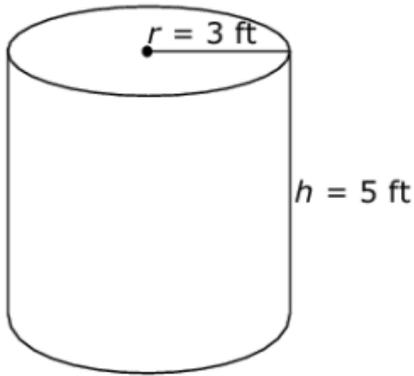
**Show your work. (Use Scratchpad)**

**Answer** \_\_\_\_\_

**Graded Rubric**

Criteria	Rating		
Criteria Name 1	<p><b>Rating 1</b></p> <p>A two-point response includes the correct solution to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none"> <li>indicates that the student has completed the task correctly, using mathematically sound procedures</li> <li>contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures</li> <li>may contain inconsequential errors that do not detract from the correct solution and the demonstration of a thorough understanding</li> </ul>	<p><b>Rating 2</b></p> <p>A one-point response demonstrates only a partial understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none"> <li>correctly addresses only some elements of the task</li> <li>may contain an incorrect solution but applies a mathematically appropriate process</li> <li>may contain the correct solution but required work is incomplete</li> </ul>	<p><b>Rating 3</b></p> <p>A zero-point response is incorrect, irrelevant, incoherent, or contains a correct solution obtained using an obviously incorrect procedure. Although some elements may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.</p>

**Q49:** A cylinder with radius 3 feet and height 5 feet is shown.



Enter the volume of the cylinder, in cubic feet. Round your answer to the nearest hundredth.

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**Q50:** A student usually saves \$20 a month. He would like to reach a goal of \$350 in 12 months. The student writes the equation  $350 = 12(x + 20)$  to represent this situation.

Solve the equation for  $x$ .

- Show your work or explain your answer.
- Write your answer as a sentence that describes what the variable  $x$  represents.

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

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