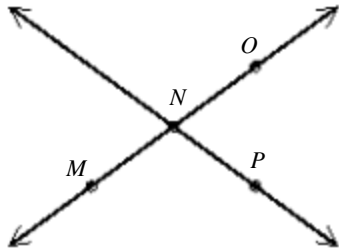


**Science & Technology Geometry Assessment 2005-2006**  
**Form A**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

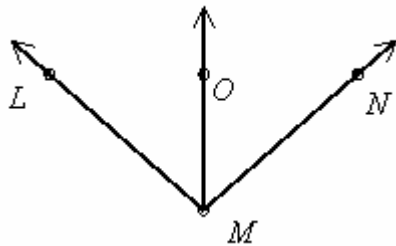
1. Is the line through points  $P(0, -9)$  and  $Q(2, -8)$  perpendicular to the line through points  $R(1, 4)$  and  $S(3, 3)$ ? Explain.
2. The Polygon Angle-Sum Theorem states: The sum of the measures of the angles of an  $n$ -gon is \_\_\_\_\_.
3. Are  $O$ ,  $N$ , and  $P$  collinear? If so, name the line on which they lie.



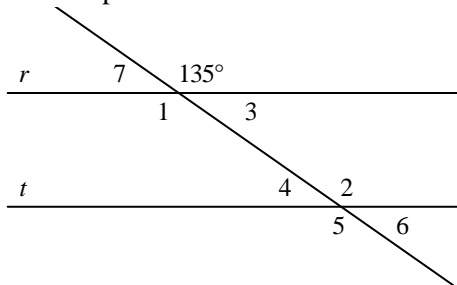
4. If  $EF = 2x - 12$ ,  $FG = 3x - 15$ , and  $EG = 23$ , find the values of  $x$ ,  $EF$ , and  $FG$ . The drawing is not to scale.



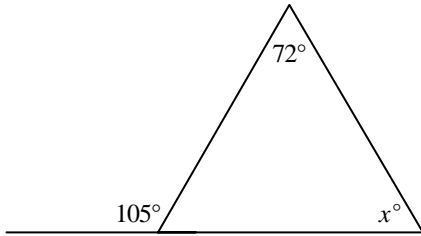
5.  $\overrightarrow{MO}$  bisects  $\angle LMN$ ,  $m\angle LMO = 8x - 23$ , and  $m\angle NMO = 2x + 37$ . Solve for  $x$  and find  $m\angle LMN$ . The diagram is not to scale.



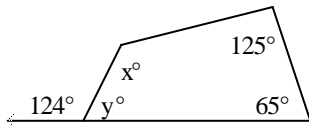
6. Line  $r$  is parallel to line  $t$ . Find  $m\angle 5$ . The diagram is not to scale.



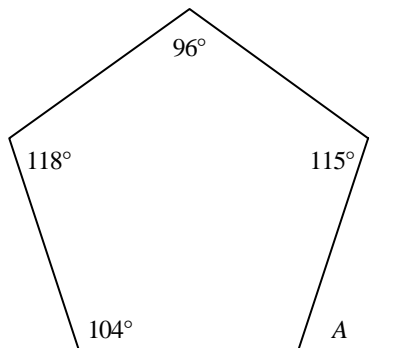
7. Find the value of  $x$ . The diagram is not to scale.



8. Find the missing angle measures. The diagram is not to scale.

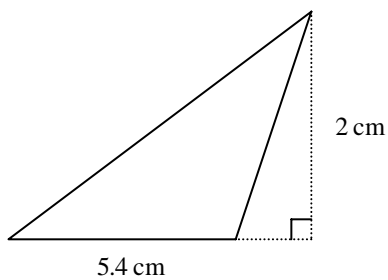


9. Find  $m\angle A$ . The diagram is not to scale.

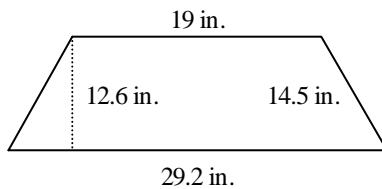


**Find the area. The figure is not drawn to scale.**

10.

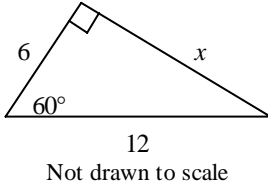


11.



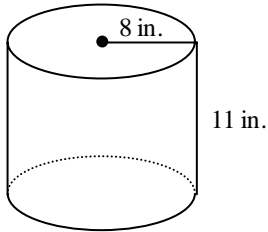
**Find the value of the variable(s). If your answer is not an integer, leave it in simplest radical form.**

12.



**Find the surface area of the cylinder in terms of  $\pi$ .**

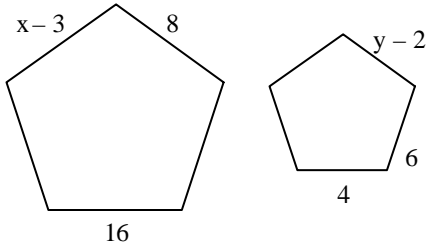
13.



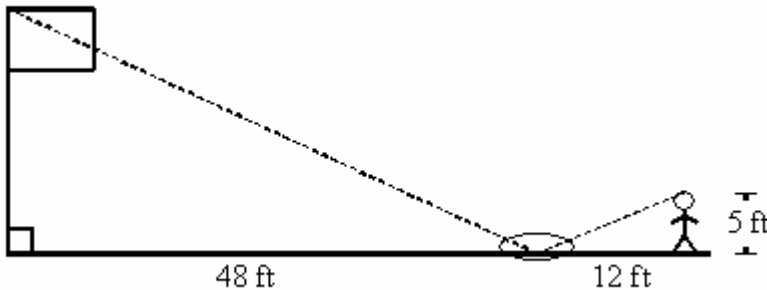
Not drawn to scale

**The polygons are similar, but not necessarily drawn to scale. Find the values of  $x$  and  $y$ .**

14. The pentagons are regular.



15. Michele wanted to measure the height of her school's flagpole. She placed a mirror on the ground 48 feet from the flagpole, then walked backwards until she was able to see the top of the pole in the mirror. Her eyes were 5 feet above the ground and she was 12 feet from the mirror. Using similar triangles, find the height of the flagpole to the nearest tenth of a foot.



**Science & Technology Geometry Assessment 2005-2006**  
**Form A**  
**Answer Section**

- |  |  |
|--|--|
| 1. No, their slopes are not reciprocals.   | Slope and Perpendicular Lines                        |
| 2. $(n - 2)180$                            | Polygon Angle Sums                                   |
| 3. No, the three points are not collinear. | Basic Terms of Geometry                              |
| 4. $x = 10, EF = 8, FG = 15$               | Finding Segment Lengths                              |
| 5. $x = 10, m\angle LMN = 114$             | Constructing Bisectors                               |
| 6. 135                                     | Properties of Parallel Lines                         |
| 7. 33                                      | Using Exterior Angles of Triangles                   |
| 8. $x = 114, y = 56$                       | Polygon Angle Sums                                   |
| 9. 73                                      | Polygon Angle Sums                                   |
| 10. $5.4 \text{ cm}^2$                     | Area of a Triangle                                   |
| 11. $303.66 \text{ in.}^2$                 | Area of a Trapezoid                                  |
| 12. $6\sqrt{3}$                            | Using $30^\circ$ - $60^\circ$ - $90^\circ$ Triangles |
| 13. $304\pi \text{ in}^2$                  | Finding Surface Area of a Cylinder                   |
| 14. $x = 27, y = 4$                        | Similar Polygons                                     |
| 15. 20 ft                                  | Applying AA, SAS, and SSS Similarity                 |

**Science & Technology Geometry Assessment 2005-2006**  
**Form B**  
**Answer Section**

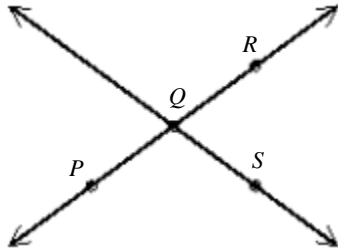
- |  |  |
|--|--|
| 1. No, their slopes are not opposite reciprocals | Slope and Perpendicular Lines                        |
| 2. $(n-2)180$                                    | Polygon -Angle Sums                                  |
| 3. Yes, they lie on the line $PR$ .              | Basic Terms of Geometry                              |
| 4. $x = 9, EF = 11, FG = 16$                     | Finding Segment Lengths                              |
| 5. $x = 15, m\angle LMN = 120$                   | Constructing Bisectors                               |
| 6. 148   | Properties of Parallel Lines                         |
| 7. 92  | Using Exterior Angles of Triangles                   |
| 8. $x = 87, y = 70$                              | Polygon Angle Sums                                   |
| 9. 73  | Polygon Angle Sums                                   |
| 10. $12.9 \text{ cm}^2$                          | Area of a Triangle                                   |
| 11. $303.66 \text{ in.}^2$                       | Area of a Trapezoid                                  |
| 12. $7\sqrt{3}$                                  | Using $30^\circ$ - $60^\circ$ - $90^\circ$ Triangles |
| 13. $160\pi \text{ in}^2$ .                      | Finding Surface Area of a Cylinder                   |
| 14. $x = 27, y = 4$                              | Similar Polygons                                     |
| 15. 20 ft  | Applying AA, SAS, and SSS Similarity                 |

**Science & Technology Geometry Assessment 2005-2006**  
**Form A**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

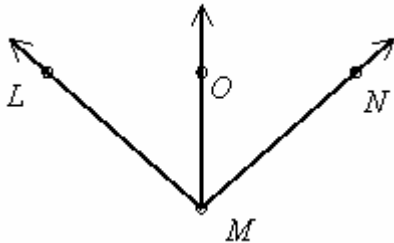
1. Is the line through points  $P(3, -2)$  and  $Q(11, 5)$  perpendicular to the line through points  $R(-10, 3)$  and  $S(-3, 11)$ ? Explain.
2. The Polygon Angle-Sum Theorem states: The sum of the measures of the angles of an  $n$ -gon is \_\_\_\_\_.
3. Are  $P$ ,  $Q$ , and  $R$  collinear? If so, name the line on which they lie.



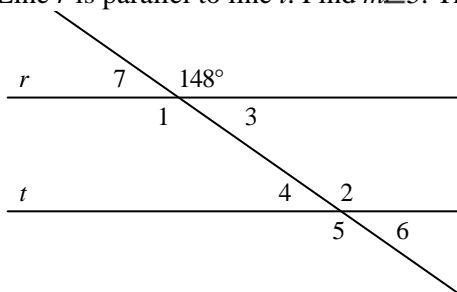
4. If  $EF = 2x - 7$ ,  $FG = 3x - 11$ , and  $EG = 27$ , find the values of  $x$ ,  $EF$ , and  $FG$ . The drawing is not to scale.



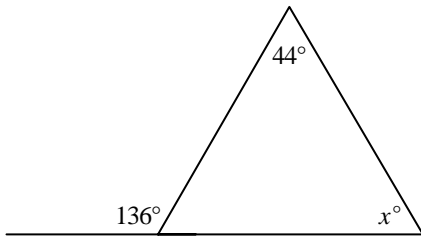
5.  $\overrightarrow{MO}$  bisects  $\angle LMN$ ,  $m\angle LMO = 6x - 30$ , and  $m\angle NMO = 2x + 30$ . Solve for  $x$  and find  $m\angle LMN$ . The diagram is not to scale.



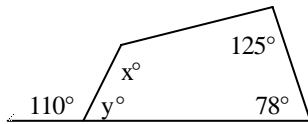
6. Line  $r$  is parallel to line  $t$ . Find  $m\angle 5$ . The diagram is not to scale.



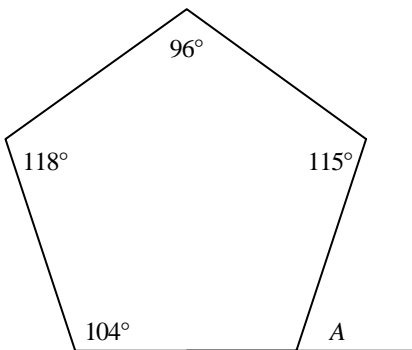
7. Find the value of  $x$ . The diagram is not to scale.



8. Find the missing angle measures. The diagram is not to scale.

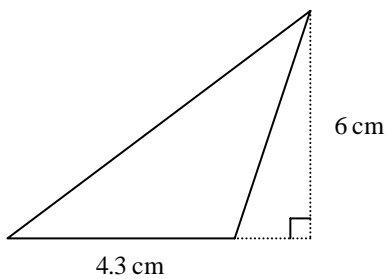


9. Find  $m\angle A$ . The diagram is not to scale.

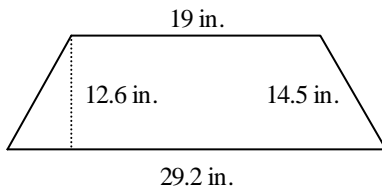


**Find the area. The figure is not drawn to scale.**

10.

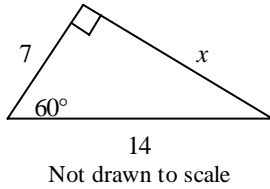


11.



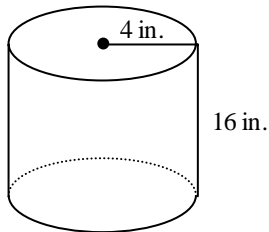
**Find the value of the variable(s). If your answer is not an integer, leave it in simplest radical form.**

12.



**Find the surface area of the cylinder in terms of  $\pi$ .**

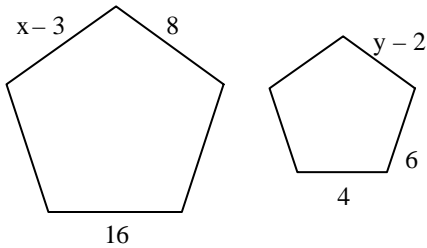
13.



Not drawn to scale

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