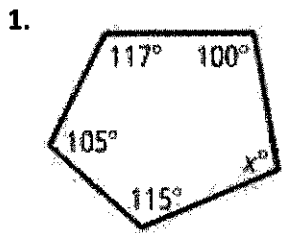


Name: key  
 Geometry

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

### Unit 8: Polygons & Quadrilaterals PBA Practice

Find the missing angle measures.

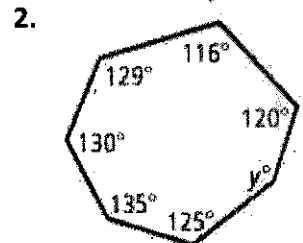


$$117 + 100 + 105 + 115 + x = (5-2)180$$

$$437 + x = 3(180)$$

$$437 + x = 540$$

$$x = 103^\circ$$

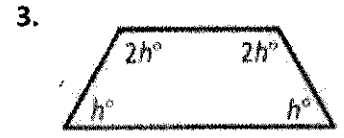


$$116 + 129 + 130 + 135 + 125 + 120 + y = (7-2)180$$

$$755 + y = 5(180)$$

$$755 + y = 900$$

$$y = 145^\circ$$



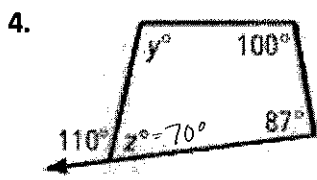
$$2h + h + 2h + h = (4-2)180$$

$$6h = 360$$

$$h = 60^\circ$$

$$2h = 120^\circ$$

Find the value of each variable.



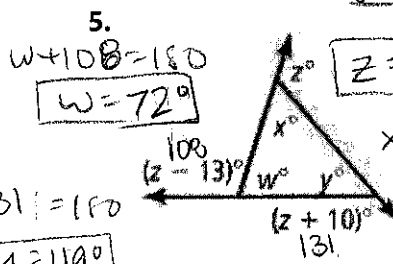
$$z + 110 = 180$$

$$z = 70^\circ$$

$$y + 100 + 87 + 70 = 360$$

$$y + 257 = 360$$

$$y = 103^\circ$$



$$w + 108 = 180$$

$$w = 72^\circ$$

$$y + 131 = 180$$

$$y = 49^\circ$$

$$x + z = 180$$

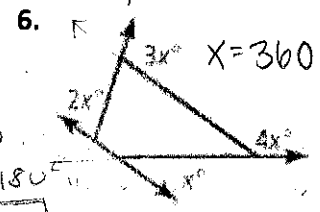
$$x + 121 = 180$$

$$x = 59^\circ$$

$$z + z - 13 + z + 10 = 360$$

$$3z - 3 = 360$$

$$3z = 363$$



$$x + 360 = 180$$

$$x = 36^\circ$$

$$3x + 4x + x + 2x = 360$$

$$10x = 360$$

$$x = 36^\circ$$

The measure of an interior angle of a regular polygon is given. Find the measure of an exterior angle. Then find the number of sides.

7. 108                      8. 144                      9. 162                      10. 150

ext.  $\angle = 180 - 108 = 72^\circ$       ext.  $\angle = 180 - 144 = 36^\circ$       ext.  $\angle = 180 - 162 = 18^\circ$       ext.  $\angle = 180 - 150 = 30^\circ$

# sides =  $\frac{360}{72} = 5$  sides      # sides =  $\frac{360}{36} = 10$  sides      # sides =  $\frac{360}{18} = 20$  sides      # sides =  $\frac{360}{30} = 12$  sides

Find the value of each variable. Then find the each angle measure.

11.



$$y + 3y = 180$$

$$4y = 180$$

$$\boxed{y = 45^\circ}$$

$$\boxed{3y = 135^\circ}$$

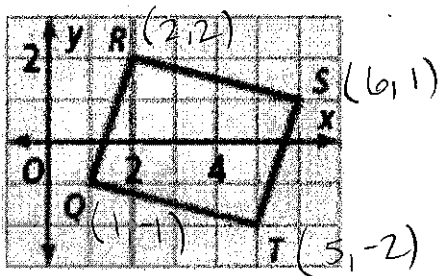
$$3x = y$$

$$3x = 45$$

$$\boxed{x = 15^\circ}$$

$$\boxed{3x = 45^\circ}$$

12. Prove that Quadrilateral  $RSTQ$  is a parallelogram using coordinate geometry. Show all of your computational work.



opp. sides  $\parallel$

or

opp. sides  $\cong$

or

diag. bis.

$$m_{RS} = \frac{2-1}{2-6} = \frac{1}{-4}$$

$$m_{QT} = \frac{-1-(-2)}{1-5} = \frac{1}{-4}$$

$$m_{RQ} = \frac{2-(-1)}{2-1} = \frac{3}{1}$$

$$m_{ST} = \frac{1-(-2)}{6-5} = \frac{3}{1}$$

$$d_{RS} = \sqrt{(2-6)^2 + (2-1)^2} = \sqrt{17}$$

$$d_{QT} = \sqrt{(1-5)^2 + (-1+2)^2} = \sqrt{17}$$

$$d_{RQ} = \sqrt{(2-1)^2 + (2-(-1))^2} = \sqrt{10}$$

$$d_{ST} = \sqrt{(6-5)^2 + (1-(-2))^2} = \sqrt{10}$$

$$M_{RT} = \left( \frac{2+5}{2}, \frac{2+(-2)}{2} \right)$$

$$= \left( \frac{7}{2}, 0 \right)$$

$$M_{QS} = \left( \frac{1+6}{2}, \frac{-1+1}{2} \right)$$

$$= \left( \frac{7}{2}, 0 \right)$$