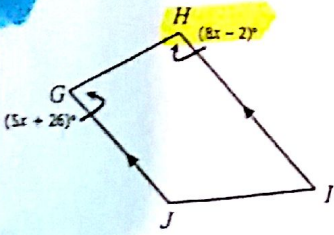


33. Find  $m\angle H$ .



$$13x + 24 = 180$$

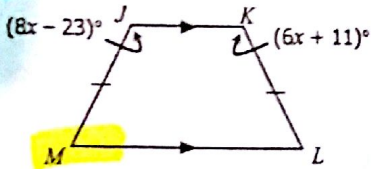
$$13x = 156$$

$$x = 12$$

$$m\angle H = 8(12) - 2$$

$$m\angle H = 94^\circ$$

34. Find  $m\angle M$ .



$$8x - 23 = 6x + 11$$

$$2x = 34$$

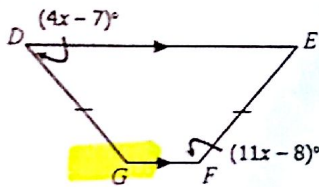
$$x = 17$$

$$m\angle J = 8(17) - 23$$

$$m\angle J = 113^\circ$$

$$m\angle M = 67^\circ$$

35. Find  $m\angle G$ .



$$15x - 15 = 180$$

$$15x = 195$$

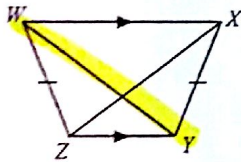
$$x = 13$$

$$m\angle F = 11(13) - 8$$

$$m\angle F = 135^\circ$$

$$m\angle G = 135^\circ$$

36. If  $WY = 15x - 2$  and  $XZ = 9x + 10$ , find  $WY$ .



$$15x - 2 = 9x + 10$$

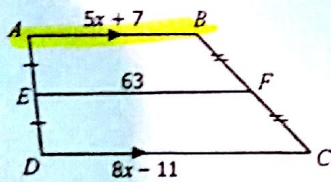
$$6x = 12$$

$$x = 2$$

$$WY = 15(2) - 2$$

$$WY = 28$$

37. Find  $AB$ .



$$\frac{5x + 7 + 8x - 11}{2} = 63$$

$$13x - 4 = 126$$

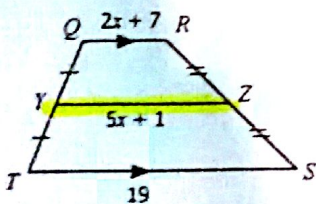
$$13x = 130$$

$$x = 10$$

$$AB = 5(10) + 7$$

$$AB = 57$$

38. Find  $YZ$ .



$$5x + 1 = \frac{2x + 7 + 19}{2}$$

$$10x + 2 = 2x + 26$$

$$8x = 24$$

$$x = 3$$

$$YZ = 5(3) + 1$$

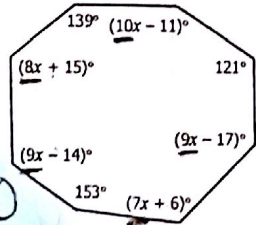
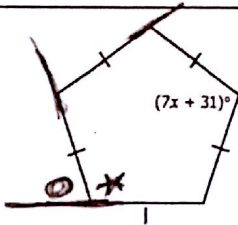
$$YZ = 16$$

# Unit 7 Test Study Guide (Polygons & Quadrilaterals)

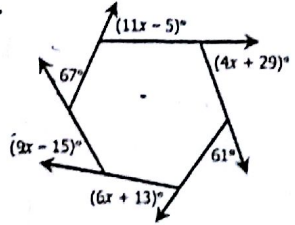
50  
20

Name: 1-13  
Date: 29-38 Block: \_\_\_\_\_

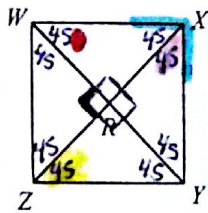
## Topic 1: Interior Angles of Polygons

<p>1. What is the formula for the sum of the interior angles of a polygon?</p> $S = 180(n-2)$	<p>2. What is the formula to find the measure of each interior angle of a regular polygon?</p> $S/n$
<p>3. Find the sum of the interior angles of a 35-gon.</p> $S = 180(35-2)$ $S = 5940^\circ$	<p>4. Six angles of a heptagon measure <math>107^\circ</math>, <math>139^\circ</math>, <math>131^\circ</math>, <math>110^\circ</math>, <math>145^\circ</math>, and <math>128^\circ</math>. What is the measure of the seventh angle?</p> $S = 180(7-2)$ $S = 900^\circ - 760^\circ = 140^\circ$
<p>5. If the sum of the interior angles of a polygon is <math>3780^\circ</math>, how many sides does it have?</p> $3780 = 180(n-2)$ $21 = n-2 \quad n = 23$	<p>6. What is the measure of each interior angle of a regular 18-gon?</p> $S = 180(18-2)$ $2880 \div 18$ $S = 2880^\circ = 160^\circ$
<p>7. Solve for x.</p> $S = 180(8-2)$ $S = 1080^\circ$ $43x + 392 = 1080$ $43x = 688 \quad x = 16$ 	<p>8. Solve for x.</p> $S = 180(5-2)$ $S = 540^\circ \div 5$ <p>each = <math>108^\circ</math></p> $7x + 31 = 108$ $7x = 77 \quad x = 11$ 

## Topic 2: Exterior Angles of Polygons

<p>9. What is the sum of the exterior angles of any polygon?</p> $360^\circ$	<p>10. What is the measures of each exterior angle of a regular nonagon?</p> $360^\circ/n$
<p>11. If the exterior angle of a regular polygon is <math>24^\circ</math>, how many sides does it have?</p> $\frac{360}{n} = 24^\circ \quad 360 = n \cdot 24$ $n = 15$	<p>12. If the interior angle of a regular polygon is <math>162^\circ</math>, how many sides does it have?</p> <p>exterior = <math>18^\circ</math></p> $\frac{360^\circ}{n} = 18^\circ \quad \frac{360}{18} = n = 20$
<p>13. Solve for x.</p> 	$30x + 150 = 360$ $30x = 210^\circ$ $x = 7$

26. If  $WXYZ$  is a square, find each angle.

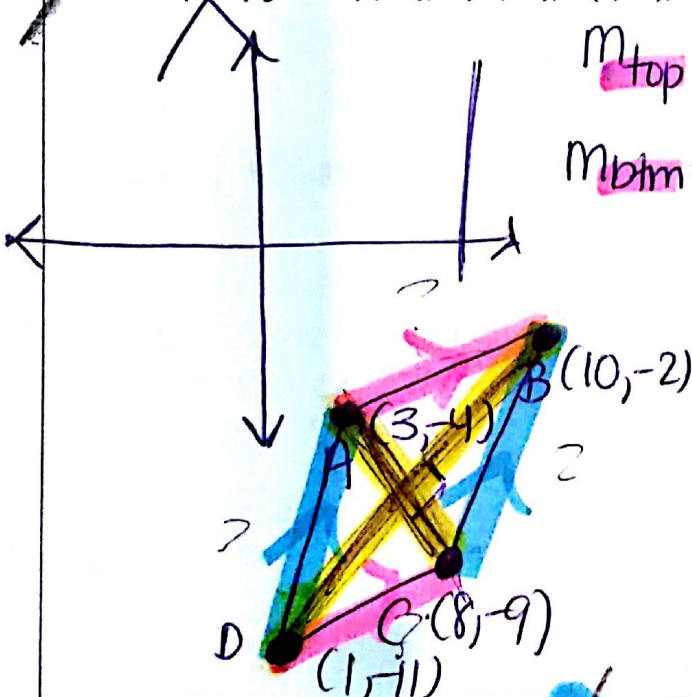


$$\begin{aligned} m\angle WXY &= 90^\circ \\ m\angle XZY &= 45^\circ \\ m\angle YXZ &= 45^\circ \\ m\angle WRZ &= 90^\circ \\ m\angle XWY &= 45^\circ \end{aligned}$$

27. Using  $WXYZ$  from the previous question, if  $WY = 32$ , find  $XY$ .

Topic 7: Classifying Quadrilaterals in the Coordinate Plane

28. Determine the most precise classification for quadrilateral  $ABCD$  (parallelogram, rectangle, rhombus, or square) given  $A(3, -4)$ ,  $B(10, -2)$ ,  $C(8, -9)$ ,  $D(1, -11)$ .



$$m_{top} = \frac{-4 + 2}{3 - 10} = \frac{-2}{-7} = \frac{2}{7}$$

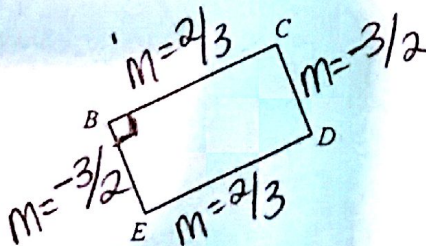
$$m_{bottom} = \frac{-11 + 9}{1 - 8} = \frac{-2}{-7} = \frac{2}{7}$$

$$m_L = \frac{-4 + 11}{3 - 1} = \frac{7}{2}$$

$$m_R = \frac{-2 + 9}{10 - 8} = \frac{7}{2}$$

$ABCD$  is a \_\_\_\_\_.

Use quadrilateral  $BCDE$  for questions 29 and 30.



29. If  $B(-2, -5)$  and  $C(4, -1)$ , what must be the slope of  $\overline{ED}$  in order for  $BCDE$  to be a parallelogram?

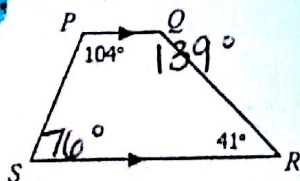
$$m = \frac{-5 + 1}{-2 - 4} = \frac{-4}{-6} = \frac{2}{3}$$

30. Given the coordinates above, what must be the slope of  $\overline{BE}$  in order for  $BCDE$  to be a rectangle?

$$m = -\frac{3}{2}$$

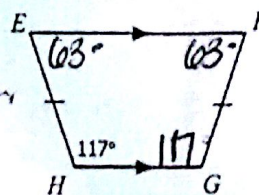
Topic 8: Trapezoids

31.



$$\begin{aligned} m\angle Q &= 139^\circ \\ m\angle S &= 76^\circ \end{aligned}$$

32.



$$\begin{aligned} m\angle E &= 63^\circ \\ m\angle F &= 63^\circ \\ m\angle G &= 117^\circ \end{aligned}$$