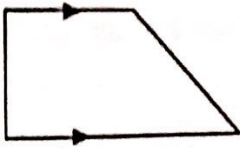
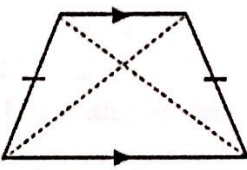


Name: Answer Key!

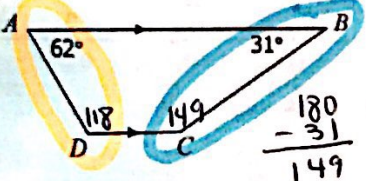
Class:

Topic: **Quads: Trapezoids**

Date:

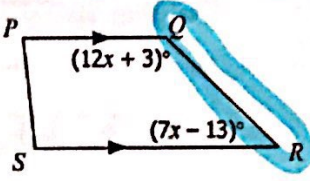
Main Ideas/Questions	Notes
<p>NON-ISOSCELES Trapezoids</p> 	<p>Properties of Non-Isosceles Trapezoids:</p> <ul style="list-style-type: none"> • Only <u>ONE</u> pair of opposite sides are parallel • Same-Side Interior Angles are supplementary
<p>ISOSCELES Trapezoids</p> 	<p>Isosceles trapezoids have the same properties as non-isosceles trapezoids, plus these:</p> <ul style="list-style-type: none"> • Non-parallel sides (legs) are congruent • Diagonals are congruent • Base angles are congruent • Opposite angles are supplementary

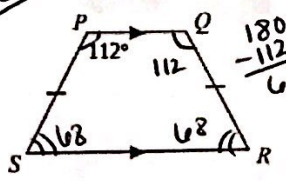
Practice! Find each missing value on the trapezoids below.

1. 

$$m\angle C = \underline{149^\circ}$$

$$m\angle D = \underline{118^\circ}$$

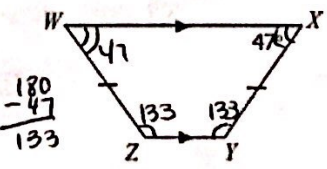
2. Find $m\angle R$. $12x + 3 + 7x - 13 = 180$
 $19x - 10$


3. *Isosceles* 

$$m\angle Q = \underline{112^\circ}$$

$$m\angle R = \underline{68^\circ}$$

$$m\angle S = \underline{68^\circ}$$

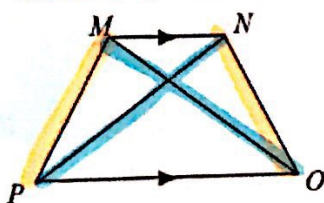
4. 

$$m\angle W = \underline{47^\circ}$$

$$m\angle Y = \underline{133^\circ}$$

$$m\angle Z = \underline{133^\circ}$$

5. If $MNOP$ is an isosceles trapezoid, $MP = 16x - 13$, $NO = 9x + 8$, $PN = 5y + 19$, and $MO = 12y - 37$, solve for x and y .



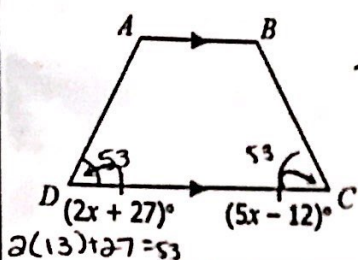
$$16x - 13 = 9x + 8$$

$$\begin{array}{r} 16x - 13 = 9x + 8 \\ +13 \quad +13 \\ \hline 16x = 9x + 21 \\ -9x \quad -9x \\ \hline 7x = 21 \\ \frac{7x}{7} = \frac{21}{7} \\ \boxed{x=3} \end{array}$$

$$5y + 19 = 12y - 37$$

$$\begin{array}{r} 5y + 19 = 12y - 37 \\ -5y \quad -5y \\ \hline 19 = 7y - 37 \\ +37 \quad +37 \\ \hline 56 = 7y \\ \frac{56}{7} = \frac{7y}{7} \\ \boxed{8=y} \end{array}$$

6. If $ABCD$ is an isosceles trapezoid, find each missing angle.



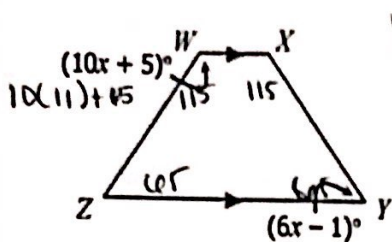
$$\begin{array}{r} 2x + 27 = 5x - 12 \\ -2x \quad -2x \\ \hline 27 = 3x - 12 \end{array}$$

$$\begin{array}{r} 27 = 3x - 12 \\ +12 \quad +12 \\ \hline 39 = 3x \\ \frac{39}{3} = \frac{3x}{3} \quad x = 13 \end{array}$$

$$\begin{array}{r} 180 \\ -53 \\ \hline 127 \end{array}$$

$$\begin{array}{l} m\angle A = \underline{127^\circ} \\ m\angle B = \underline{127^\circ} \\ m\angle C = \underline{53^\circ} \\ m\angle D = \underline{53^\circ} \end{array}$$

7. If $WXYZ$ is an isosceles trapezoid, find each missing angle.



$$10x + 5 + 6x - 1 = 180$$

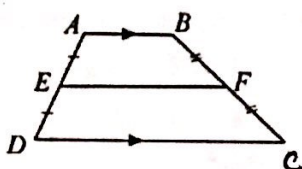
$$\begin{array}{r} 16x + 4 = 180 \\ -4 \quad -4 \\ \hline 16x = 176 \end{array}$$

$$\begin{array}{r} 16x = 176 \\ \frac{16x}{16} = \frac{176}{16} \\ x = 11 \end{array}$$

$$\begin{array}{l} m\angle W = \underline{115^\circ} \\ m\angle X = \underline{115^\circ} \\ m\angle Y = \underline{65^\circ} \\ m\angle Z = \underline{65^\circ} \end{array}$$

MIDSEGMENT of a TRAPEZOID

The midsegment of a trapezoid connects the midpoints of the legs:



If \overline{EF} is the midsegment of trapezoid $ABCD$, then:

- $\overline{AB} \parallel \overline{EF} \parallel \overline{DC}$
- $\frac{AB+DC}{2} = \frac{EF}{1}$ OR $\frac{\text{outsides}}{2} = \frac{\text{inside}}{1}$

Practice! Use the trapezoid above for questions 1-4.

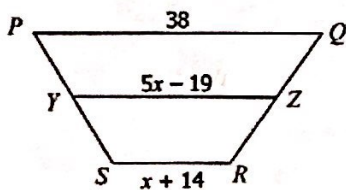
1. If $AB = 14$ and $DC = 26$, find EF .

$$\frac{14 + 26}{2} = \frac{x}{1} \quad \frac{40}{2} = x \quad \boxed{20 = x}$$

2. If $EF = 22$ and $DC = 38$, find AB .

$$\frac{x + 38}{2} = \frac{22}{1} \quad 44 = 38 + x \quad \boxed{6 = x}$$

3. For trapezoid $PQRS$, Y and Z are midpoints of the legs. Find YZ .

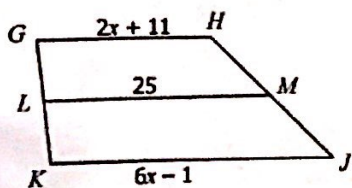


~~$$\frac{38 + x + 14}{2} = \frac{5x - 19}{1}$$~~

$$\begin{array}{l} 2(5x - 19) = x + 52 \\ 10x - 38 = x + 52 \\ 9x - 38 = 52 \end{array}$$

$$\begin{array}{l} 9x = 90 \\ x = 10 \\ yz = \frac{5(10) - 19}{1} \\ \quad \quad \quad 50 - 19 \\ \quad \quad \quad \boxed{31} \end{array}$$

4. For trapezoid $GHJK$, L and M are midpoints of the legs. Find KJ .



~~$$\frac{2x + 11 + 6x - 1}{2} = \frac{25}{1}$$~~

$$\begin{array}{l} 50 = 8x + 10 \\ 40 = 8x \\ 5 = x \end{array}$$

$$\begin{array}{l} KJ = 6(5) - 1 \\ \quad \quad \quad 30 - 1 \\ \quad \quad \quad \boxed{29} \end{array}$$