

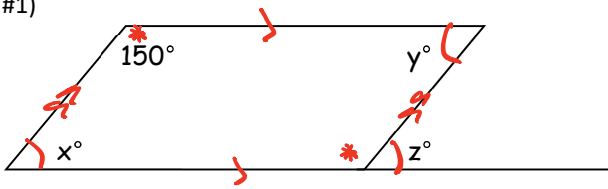
Quadrilaterals

Homework Practice Test 6

Name _____

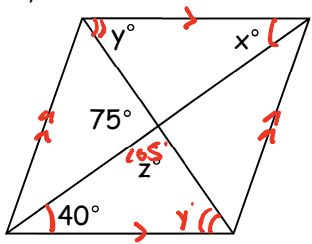
If each quadrilateral is a parallelogram, find the value of x , y , and z .

#1)



$$\begin{aligned} x + 150 &= 180 \\ x &= 30 \\ y &= 30 \\ z &= 30 \end{aligned}$$

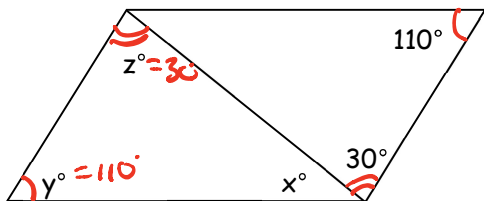
#2)



$$x = 46$$

$$\begin{aligned} z + 75 &= 180 \\ z &= 105 \end{aligned} \quad \left. \begin{aligned} 40 + 105 + y &= 180 \\ 145 + y &= 180 \\ y &= 35 \end{aligned} \right\}$$

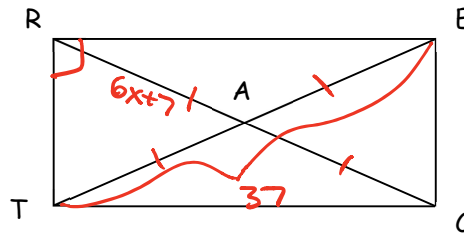
#3)



$$\begin{aligned} y &= 110 \\ z &= 30 \end{aligned} \quad \left. \begin{aligned} 30 + 110 + x &= 180 \\ 140 + x &= 180 \\ x &= 40 \end{aligned} \right\}$$

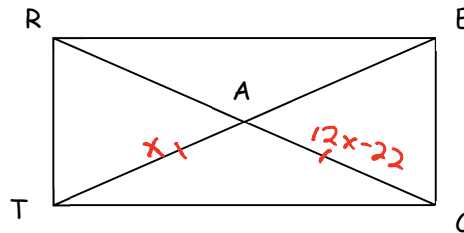
If each quadrilateral is a rectangle, find the value of x .

#4) $RA = 6x + 7$, $TE = 37$



$$\begin{aligned} TA + AE &= TE \\ (6x+7) + (6x+7) &= 37 \\ 12x + 14 &= 37 \\ 12x &= 23 \\ x &= \frac{23}{12} \end{aligned}$$

#5) $TA = x$, $AC = 12x - 22$



$$\begin{aligned} TA &= AC \\ x &= 12x - 22 \\ -11x &= -22 \\ x &= 2 \end{aligned}$$

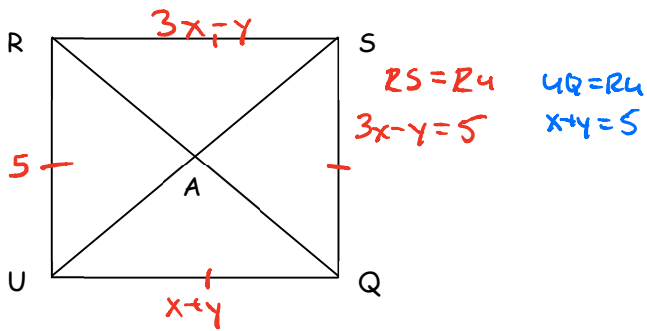
Quadrilaterals

Homework Practice Test 6

Name _____

If the quadrilateral is a square, find the value of x and y .

#6) $SR = 3x - y$, $UQ = x + y$, $RU = 5$



$$\begin{aligned} 3x - y &= 5 \\ x + y &= 5 \end{aligned} \rightarrow y = 5 - x$$

$$3x - (5 - x) = 5$$

$$3x - 5 + x = 5$$

$$4x - 5 = 5$$

$$4x = 10$$

$$x = \frac{10}{4}$$

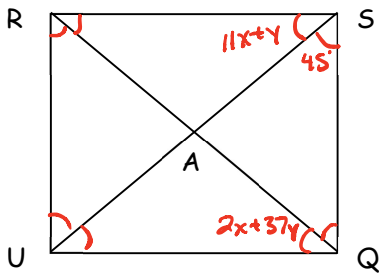
$$x = \frac{5}{2}$$

$$y = \frac{10}{2} - \left(\frac{5}{2}\right)$$

$$y = \frac{5}{2}$$

$\left(\frac{5}{2}, \frac{5}{2}\right)$

#7) $m\angle RSA = 11x + y$, $m\angle AQU = 2x + 37y$



$$\begin{aligned} 11x + y &= 45 \\ 2x + 37y &= 45 \end{aligned} \rightarrow y = 45 - 11x$$

$$2x + 37(45 - 11x) = 45$$

$$2x + 1665 - 407x = 45$$

$$1665 - 405x = 45$$

$$-405x = -1620$$

$$x = 4$$

$$y = 45 - 11(4)$$

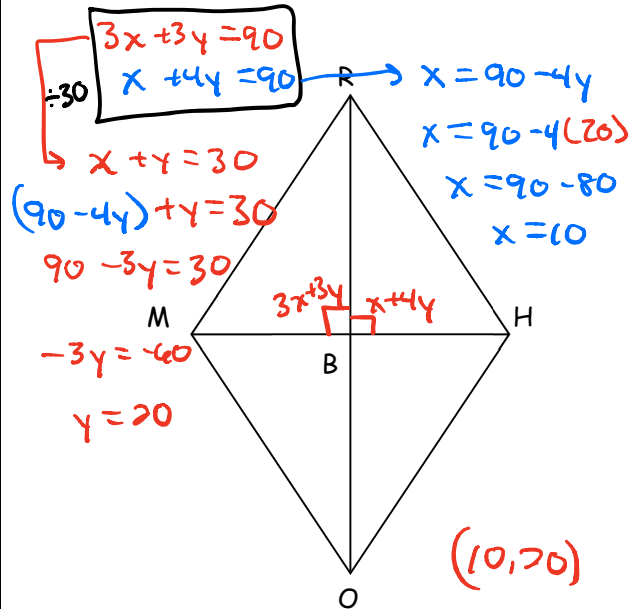
$$y = 45 - 44$$

$$y = 1$$

$(4, 1)$

If the quadrilateral is a rhombus, find the value of x and y .

#8) $m\angle RBM = 3x + 3y$, $m\angle RBH = x + 4y$



$$\begin{aligned} 3x + 3y &= 90 \\ x + 4y &= 90 \end{aligned} \rightarrow x = 90 - 4y$$

$$x + y = 30$$

$$(90 - 4y) + y = 30$$

$$90 - 3y = 30$$

$$-3y = -60$$

$$y = 20$$

$$x = 90 - 4(20)$$

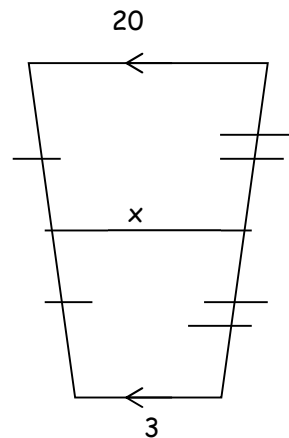
$$x = 90 - 80$$

$$x = 10$$

$(10, 20)$

If each quadrilateral is a trapezoid, find the value of x .

#9)



$$\text{Median} = \frac{b_1 + b_2}{2}$$

$$x = \frac{(20) + (3)}{2}$$

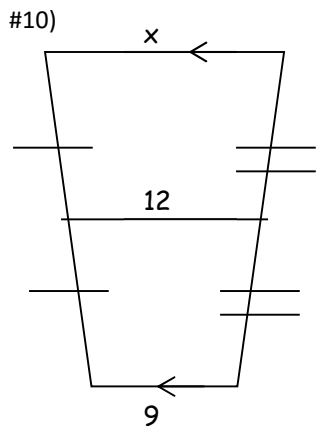
$$x = \frac{23}{2}$$

Quadrilaterals

Homework Practice Test 6

Name _____

If each quadrilateral is a trapezoid, find the value of x.



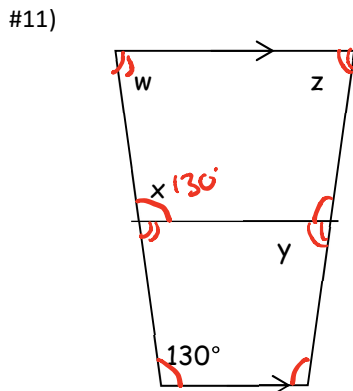
$$\text{Median} = \frac{b_1 + b_2}{2}$$

$$12 = \frac{x + (9)}{2}$$

$$24 = x + 9$$

$$15 = x$$

If the quadrilateral is an isosceles trapezoid, find the value of w, x, y, and z.



$$y + 130 = 180$$

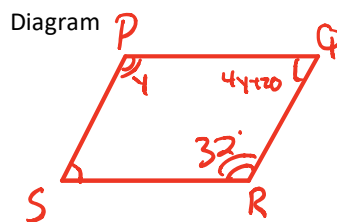
$$y = 50$$

$$w = 50$$

$$z = 50$$

$$x = 130$$

#12) Given parallelogram PQRS with $m\angle P = y$ and $m\angle Q = 4y + 20$, find the measures of $\angle R$ and $\angle S$.



Work

$$y + 4y + 20 = 180$$

$$5y + 20 = 180$$

$$5y = 160$$

$$y = 32$$

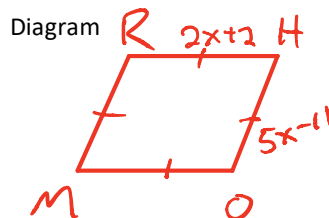
$$m\angle S = 4y + 20$$

$$= 4(32) + 20$$

$$= 128 + 20$$

$$m\angle S = 148$$

#13) Given rhombus RHOM with $RH = 2x + 2$ and $HO = 5x - 11$, find MR.



Work

$$RH = HO$$

$$2x + 2 = 5x - 11$$

$$2 = 3x - 11$$

$$13 = 3x$$

$$\frac{13}{3} = x$$

$$MR = 2x + 2$$

$$= 2\left(\frac{13}{3}\right) + 2$$

$$= \frac{26}{3} + \frac{6}{3}$$

$$MR = \frac{32}{3}$$

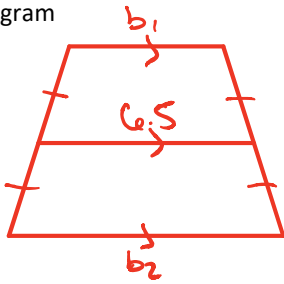
Quadrilaterals

Homework Practice Test 6

Name _____

#14) If the measure of the median of an isosceles trapezoid is 6.5, what are the possible integral measures for the bases?

Diagram



Work

$$\text{Median} = \frac{b_1 + b_2}{2}$$

$$6.5 = \frac{b_1 + b_2}{2}$$

$$13 = b_1 + b_2$$

$$(1, 12)$$

$$(2, 11)$$

$$(3, 10)$$

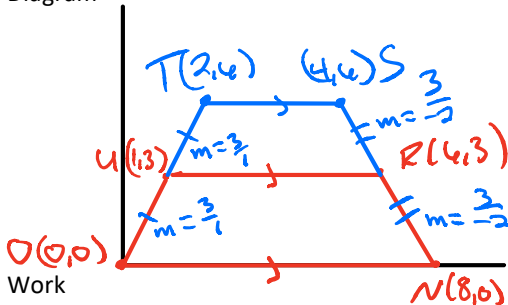
$$(4, 9)$$

$$(5, 8)$$

$$(6, 7)$$

#15) \overline{UR} is the median of a trapezoid with bases \overline{ON} and \overline{TS} . If the coordinates of the points are $U(1, 3)$, $R(6, 3)$, $O(0, 0)$, and $N(8, 0)$, find the coordinates of T and S .

Diagram

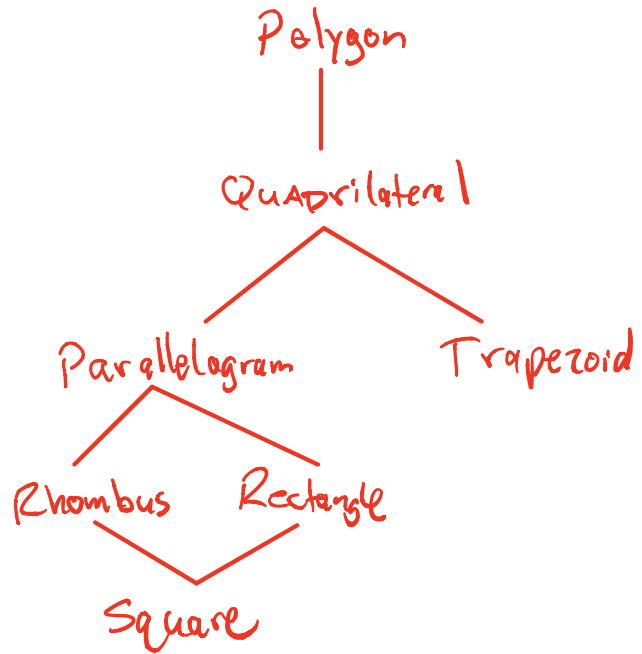


Work

$$T(2, 4)$$

$$S(4, 4)$$

#16) Draw a tree diagram using square, parallelogram, rhombus, quadrilateral, rectangle, polygon, and trapezoid. Your tree should start with the most general term and then gradually get more specific.



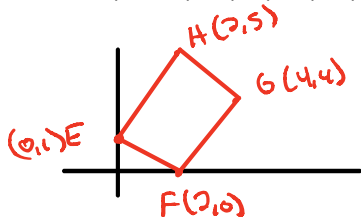
Quadrilaterals

Homework Practice Test 6

Name _____

Determine whether EFGH is a parallelogram, rectangle, rhombus, or square.
List all that apply. Organize your work in a logical manner.

#17) E(0, 1), F(2, 0), G(4, 4), H(2, 5)



Parallelogram? $M_{\overline{HF}} = M_{\overline{EG}}$

$$\begin{aligned} M_{\overline{HF}} &= \left(\frac{\sum x}{2}, \frac{\sum y}{2} \right) \\ &= \left(\frac{(0)+(2)}{2}, \frac{(1)+(5)}{2} \right) \\ &= \left(\frac{2}{2}, \frac{6}{2} \right) \\ M_{\overline{HF}} &= (1, 3) \end{aligned}$$

$$\begin{aligned} M_{\overline{EG}} &= \left(\frac{\sum x}{2}, \frac{\sum y}{2} \right) \\ &= \left(\frac{(2)+(4)}{2}, \frac{(0)+(4)}{2} \right) \\ &= \left(\frac{6}{2}, \frac{4}{2} \right) \\ M_{\overline{EG}} &= (3, 2) \end{aligned}$$

Rhombus? $m_{\overline{HF}} \perp m_{\overline{EG}}$

$\begin{aligned} m_{\overline{HF}} &= \frac{\Delta y}{\Delta x} \\ &= \frac{(5)-(1)}{(2)-(0)} \\ &= \frac{4}{2} \\ m_{\overline{HF}} &= 2 \end{aligned}$	$\begin{aligned} m_{\overline{EG}} &= \frac{\Delta y}{\Delta x} \\ &= \frac{(4)-(0)}{(4)-(2)} \\ &= \frac{4}{2} \\ m_{\overline{EG}} &= 2 \end{aligned}$
--	--

Rectangle? $d_{\overline{HF}} = d_{\overline{EG}}$

$\begin{aligned} d_{\overline{HF}} &= \sqrt{[\Delta x]^2 + [\Delta y]^2} \\ &= \sqrt{[(2)-(0)]^2 + [(5)-(1)]^2} \\ &= \sqrt{[2]^2 + [4]^2} \\ &= \sqrt{4+16} \\ &= \sqrt{20} \\ d_{\overline{HF}} &= \sqrt{20} \end{aligned}$	$\begin{aligned} d_{\overline{EG}} &= \sqrt{[\Delta x]^2 + [\Delta y]^2} \\ &= \sqrt{[(4)-(2)]^2 + [(4)-(0)]^2} \\ &= \sqrt{[2]^2 + [4]^2} \\ &= \sqrt{4+16} \\ &= \sqrt{20} \\ d_{\overline{EG}} &= \sqrt{20} \end{aligned}$
---	---

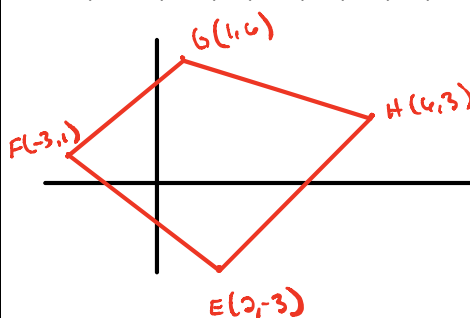
Parallelogram

Rectangle

~~Rhombus~~

~~Square~~

#18) E(2, -3), F(-3, 1), G(1, 6), H(6, 3)



Parallelogram? $M_{\overline{FH}} = M_{\overline{EG}}$

$$\begin{aligned} M_{\overline{FH}} &= \left(\frac{\sum x}{2}, \frac{\sum y}{2} \right) \\ &= \left(\frac{(-3)+(6)}{2}, \frac{(1)+(3)}{2} \right) \\ &= \left(\frac{3}{2}, \frac{4}{2} \right) \\ M_{\overline{FH}} &= \left(\frac{3}{2}, 2 \right) \end{aligned}$$

$$\begin{aligned} M_{\overline{EG}} &= \left(\frac{\sum x}{2}, \frac{\sum y}{2} \right) \\ &= \left(\frac{(1)+(2)}{2}, \frac{(6)+(-3)}{2} \right) \\ &= \left(\frac{3}{2}, \frac{3}{2} \right) \end{aligned}$$

~~Parallelogram~~

~~Rectangle~~

~~Rhombus~~

~~Square~~

Quadrilaterals

Homework Practice Test 6

Name _____

#19) What is the distance formula?

$$d = \sqrt{[\Delta x]^2 + [\Delta y]^2}$$

#20) What is the slope formula?

$$m = \frac{\Delta y}{\Delta x}$$

#21) What is the midpoint formula for the midpoint in a coordinate plane?

$$M = \left(\frac{\sum x}{2}, \frac{\sum y}{2} \right)$$

#1) $x = 30, y = 30, z = 30$

#2) $x = 40, y = 35, z = 105$

#3) $x = 40, y = 110, z = 30$

#4) $x = \frac{23}{12}$

#5) $x = 2$

#6) $\left(\frac{5}{2}, \frac{5}{2} \right)$

#7) $(4, 1)$

#8) $(10, 20)$

#9) $x = 11.5$

#10) $x = 15$

#11) $w = 50, x = 130, y = 50, z = 50$

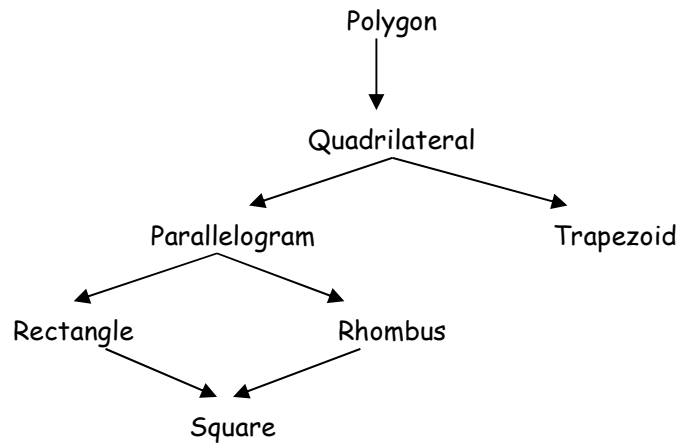
#12) $m\angle R = 32^\circ, m\angle S = 148^\circ$

#13) $MR = \frac{32}{3}$

#14) 1, 12; 2, 11; 3, 10; 4, 9; 5, 8; 6, 7

#15) T(2, 6), S(4, 6)

#16)



#17) Parallelogram and a rectangle.

#18) None

#19), #20), #21) Use your notes. Don't be lazy.