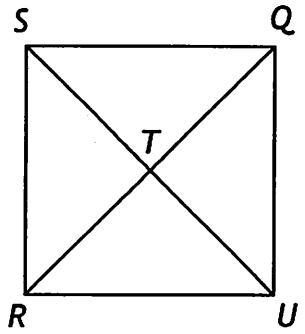
Quad Properties with Algebra Practice Name _____



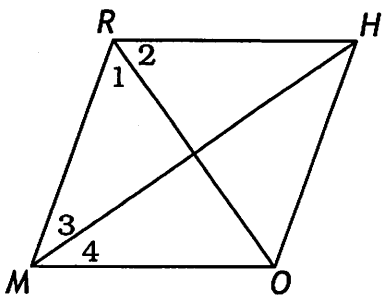

*SQUR* is a square. If $SQ = 2x + 10$ and $QU = 3x - 4$, find:

$x =$ _____

$SR =$ _____

Perimeter of square *SQUR* _____

2)



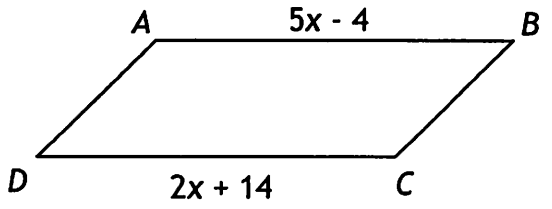

In rhombus *RHOM*, if $m\angle 1 = 55^\circ$, find:

$m\angle 2 =$

$m\angle 3 =$

$m\angle 4 =$

3)



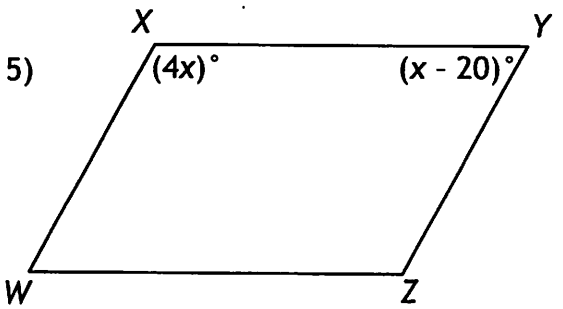

*ABCD* is a parallelogram. Find:

$x =$

$AB =$ $DC =$

4) The measures of two consecutive angles of a parallelogram are $(x + 40)^\circ$ and $(2x - 10)^\circ$, solve for $x$.

5)




*WXYZ* is a parallelogram. Find:

$x =$

$m\angle X =$ $m\angle Y =$

$m\angle W =$ $m\angle Z =$

6) In parallelogram *ABCD*, $m\angle A = 2x + 50$ and $m\angle C = 3x + 40$. Find $m\angle B$.

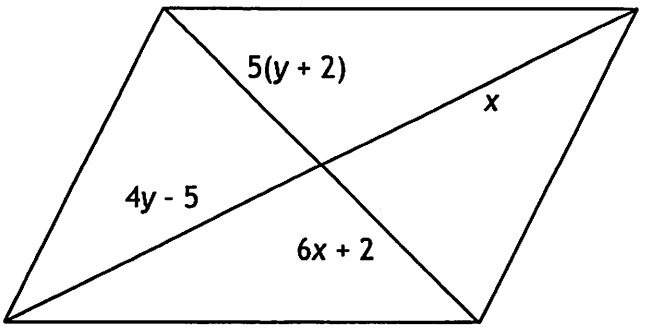
7) In rhombus *ABCD*, the lengths of sides *AB* and *BC* are represented by $3x - 4$ and $2x + 1$ respectively. Find the perimeter of the rhombus.

8) In isosceles trapezoid $ABCD$, $AC = 3x + 7$ and $BD = 5x - 9$. Find the length of $AC$.

9) In parallelogram $ABCD$, $m\angle A = 2x + 50$ and $m\angle C = 3x + 40$. Find the degree measure of $\angle A$.

10) In isosceles trapezoid TRAP, $\overline{TR} \parallel \overline{AP}$. If $m\angle T = (4x + 45)°$ and $m\angle A = (2x + 75)°$, find $m\angle R$.

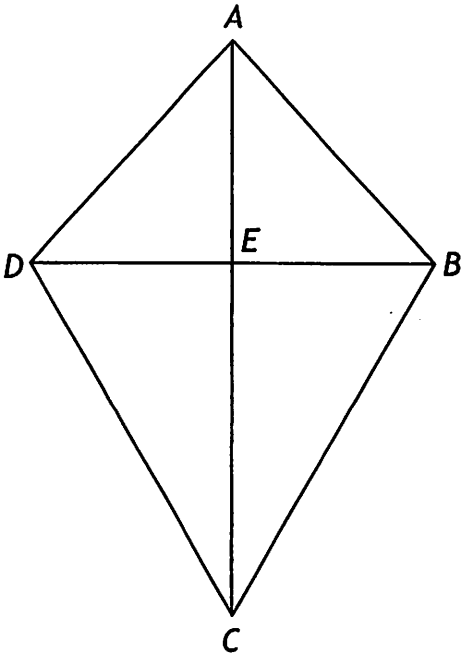
11) Find the values of variables in the parallelogram below:



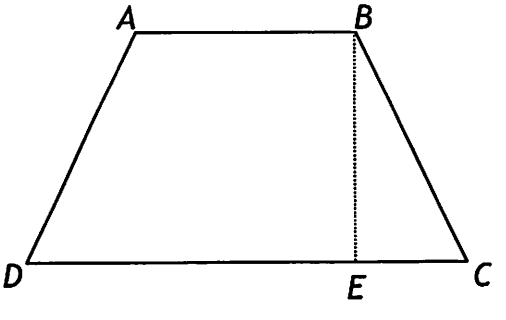
12) The perimeter of a rectangle is $12x + 4$. If the width is $2x$, what is the length of the rectangle?

13) The measures of 2 consecutive angles of a parallelogram are in the ratio 3:7. Find the measure of the larger angle.

14) Based solely on the information given, Can you conclude that *ABCD* is a kite? If yes, state the property that justifies that *ABCD* is a kite. If no, give counter examples.
Given: $\overline{AC} \perp \overline{BD}$




15) In the accompanying diagram, *ABCD* is an isosceles trapezoid with altitude *BE*, *AB* = 10, *AD* = 15, and *BE* = 12. Find *EC*, the area of $\Delta BEC$, and the area and perimeter of the entire trapezoid.



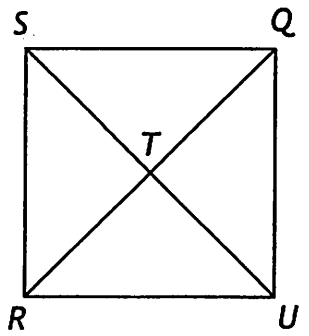

a) Find *EC*

b) Find the area of $\Delta BEC$

c) Find the area of trapezoid *ABCD*

d) Find perimeter of trapezoid *ABCD*

Quad Properties with Algebra Practice  Name Key




*SQUR* is a square. If $SQ = 2x + 10$ and $QU = 3x - 4$, find:

$2x + 10 = 3x - 4$

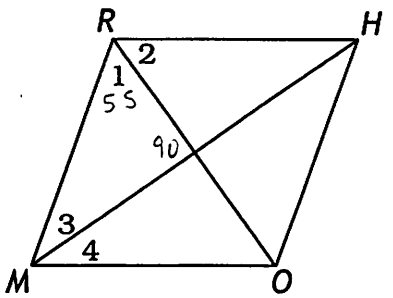
$x = 14$

$x =$ 14

$SR =$ 38

Perimeter of square *SQUR* 152

2)



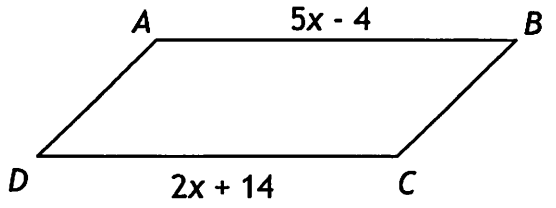

In rhombus *RHOM*, if $m\angle 1 = 55^\circ$, find:

$m\angle 2 =$ 55

$m\angle 3 =$ 35

$m\angle 4 =$ 35

3)




*ABCD* is a parallelogram. Find:

$x =$ 6

$AB =$ 26  $DC =$ 26

$5x - 4 = 2x + 14$

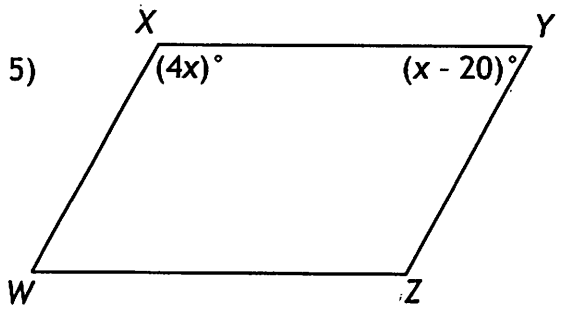
$3x = 18$

$x = 6$

4) The measures of two consecutive angles of a parallelogram are $(x + 40)^\circ$ and $(2x - 10)^\circ$, solve for $x$.

$$x + 40 + 2x - 10 = 180$$
$$3x = 150$$
$$x = 50$$

5)




*WXYZ* is a parallelogram. Find:

$x = 40$

$m\angle X = 160$ $m\angle Y = 20$

$m\angle W = 20$ $m\angle Z = 160$

$$4x + x - 20 = 180$$
$$5x = 200$$
$$x = 40$$

6) In parallelogram *ABCD*, $m\angle A = 2x + 50$ and $m\angle C = 3x + 40$. Find $m\angle B$.

$$2x + 50 = 3x + 40$$
$$10 = x$$

$m\angle A = 70^\circ$ $m\angle B = 110^\circ$

7) In rhombus *ABCD*, the lengths of sides *AB* and *BC* are represented by $3x - 4$ and $2x + 1$ respectively. Find the perimeter of the rhombus.

$$3x - 4 = 2x + 1$$
$$x = 5$$

$AB = 11$ $\times 4$ Perimeter = 44

8) In isosceles trapezoid *ABCD*, $AC = 3x + 7$ and $BD = 5x - 9$. Find the length of *AC*.

$3x + 7 = 5x - 9$

$16 = 2x$

$8 = x$

$AC = 31$

9) In parallelogram *ABCD*, $m\angle A = 2x + 50$ and $m\angle C = 3x + 40$. Find the degree measure of $\angle A$.

$2x + 50 = 3x + 40$

$10 = x$

$m\angle A = 70°$

10) In isosceles trapezoid TRAP, $\overline{TR} \parallel \overline{AP}$. If $m\angle T = (4x + 45)°$ and $m\angle A = (2x + 75)°$, find $m\angle R$.

$4x + 45 + 2x + 75 = 180$

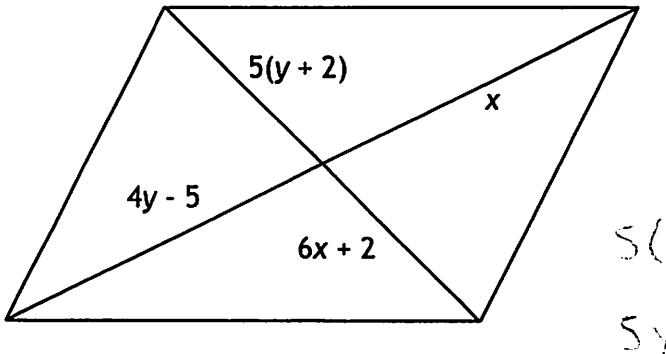
$6x + 120 = 180$

$m\angle T = m\angle R = 85°$

$6x = 60$

$x = 10$

11) Find the values of variables in the parallelogram below:




$5(y+2) = 6x + 2$

$x = 4y - 5$

$5(y+2) = 6(4y - 5) + 2$

$5y + 10 = 24y - 28$

$38 = 19y$

$2 = y$

$x = 3$

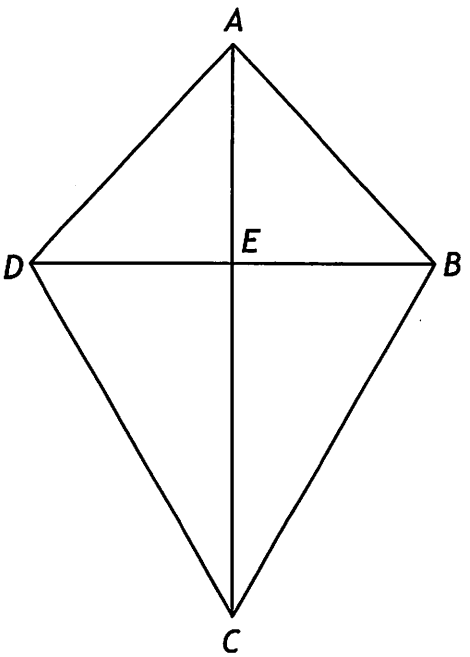
12) The perimeter of a rectangle is $12x + 4$. If the width is $2x$, what is the length of the rectangle?

$2x + 2x = 4x$ $\quad 12x + 4 - 4x = \frac{8x+4}{2} = \boxed{4x+2}$

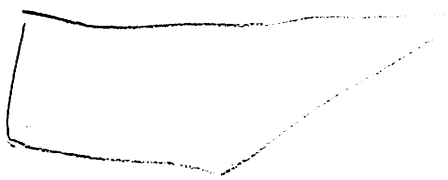
13) The measures of 2 consecutive angles of a parallelogram are in the ratio 3:7. Find the measure of the larger angle.

$\frac{7}{10}(180) = 126°$

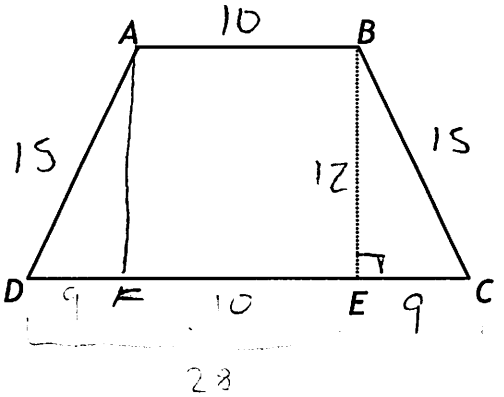
14) Based solely on the information given, Can you conclude that *ABCD* is a kite? If yes, state the property that justifies that *ABCD* is a kite. If no, give counter examples.
Given: $\overline{AC} \perp \overline{BD}$




No a rhombus has diag. that are ⊥



15) In the accompanying diagram, *ABCD* is an isosceles trapezoid with altitude *BE*, *AB* = 10, *AD* = 15, and *BE* = 12. Find *EC*, the area of $\Delta BEC$, and the area and perimeter of the entire trapezoid.




a) Find *EC* 9

b) Find the area of $\Delta BEC$ 54

c) Find the area of trapezoid *ABCD*
228

d) Find perimeter of trapezoid *ABCD*
68