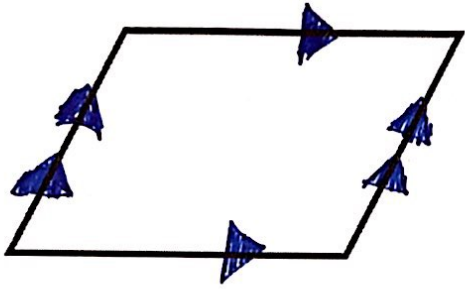


GUIDED NOTES: Properties of Parallelograms

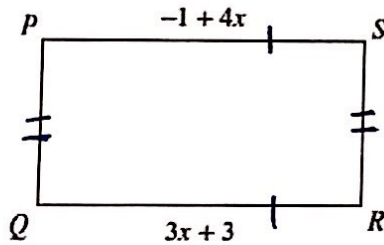
Property: Opposite sides are parallel.



Property: Opposite sides are congruent.

↳ equal

EX1. Solve for x.

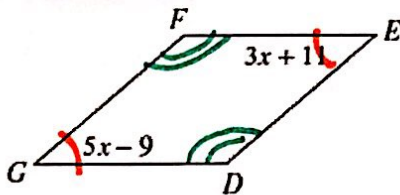


$$\begin{array}{r}
 -1 + 4x = 3x + 3 \\
 +1 \qquad \qquad +1 \\
 \hline
 4x = 3x + 4 \\
 -3x \quad -3x \\
 \hline
 \boxed{x = 4}
 \end{array}$$

Property: Opposite angles are congruent.

↳ across from each other

EX2. Find $m\angle G$.



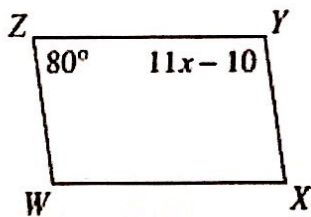
$$\begin{array}{r}
 3x + 11 = 5x - 9 \\
 -3x \quad \quad -3x \\
 \hline
 11 = 2x - 9 \\
 +9 \quad \quad +9 \\
 \hline
 \frac{20}{2} = \frac{2x}{2} \quad \boxed{x = 10}
 \end{array}$$

$$\begin{aligned}
 m\angle G &= 5(10) - 9 \\
 &= 50 - 9 \\
 &= 41^\circ
 \end{aligned}$$

Property: Consecutive angles are supplementary.

↳ next to each other

EX3. Solve for x.



$$80 + 11x - 10 = 180$$

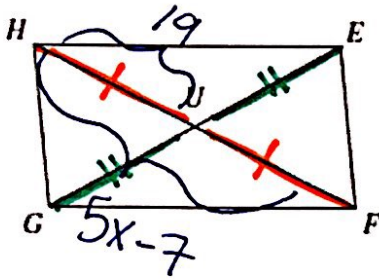
$$\begin{array}{r}
 11x + 70 = 180 \\
 -70 \quad -70 \\
 \hline
 11x = 110 \\
 \frac{11x}{11} = \frac{110}{11} \quad \boxed{x = 10}
 \end{array}$$

Property: Diagonals bisect each other.

↳ cut in half

* Diagonals don't have *
to be equal

EX4. Given $UH = 19$ and $FH = 5x - 7$, solve for x .



$$5x - 7 = 19 + 19$$

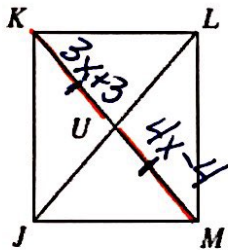
$$5x - 7 = 38$$

$$\begin{array}{r} +7 \quad +7 \\ \hline 5x = 45 \end{array}$$

$$\frac{5x}{5} = \frac{45}{5}$$

$$\boxed{X = 9}$$

EX5. Given $KU = 3x + 3$ and $UM = 4x - 4$, solve for x .



$$\begin{array}{r} 3x + 3 = 4x - 4 \\ -3x \quad -3x \\ \hline 3 = x - 4 \end{array}$$

$$\begin{array}{r} 3 = x - 4 \\ +4 \quad +4 \\ \hline 7 = x \end{array}$$

$$\boxed{7 = x}$$

Name:

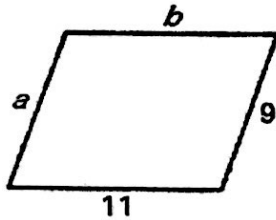
Period:

Date:

Practice Worksheet:
How do you use properties of parallelograms to solve problems?

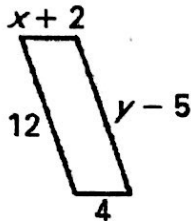
Find the value of each variable in the parallelogram.

1.



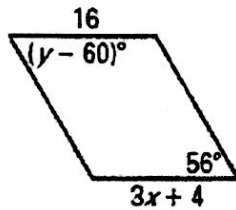
$$a = 9$$
$$b = 11$$

2.



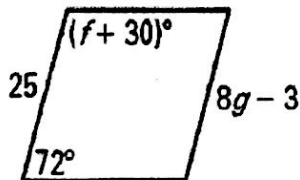
$$x = 2$$
$$y = 17$$

3.



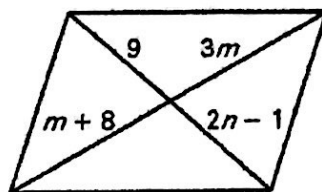
$$x = 4$$
$$y = 116$$

4.



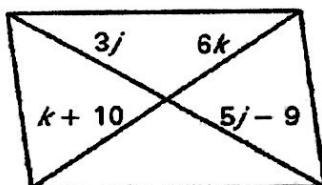
$$f = 78$$
$$g = \frac{7}{2} \text{ or } 3.5$$

5.



$$m = 2$$
$$n = 5$$

6.



$$j = \frac{9}{2} \text{ or } 4.5$$
$$k = 2$$