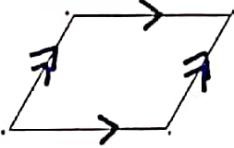
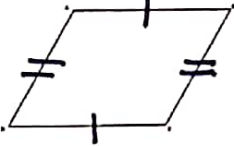
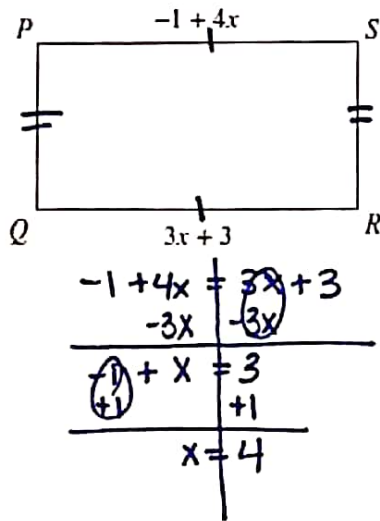


March 19

GUIDED NOTES: Properties of Parallelograms

Sides	<p>4 sides</p> <p>A parallelogram is a <u>quadrilateral</u> with both pairs of opposite sides parallel.</p>	
	<p>If a quadrilateral is a parallelogram, the 2 pairs of opposite sides are <u>congruent</u>.</p> <p>equal</p>	

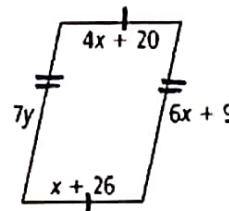
EX1. Solve for the length of **PS**.



$$PS = -1 + 4(4)$$

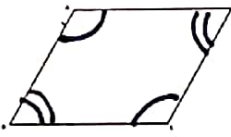
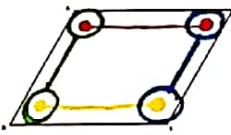
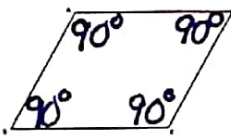
$$PS = 15$$

EX2. Solve for **x** and **y**.

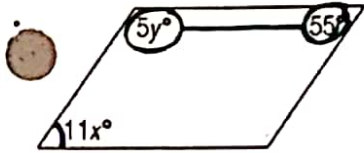


$$\begin{array}{r}
 4x + 20 = x + 26 \\
 -x \quad -x \\
 \hline
 3x + 20 = 26 \\
 -20 \quad -20 \\
 \hline
 3x = 6 \\
 \frac{3x}{3} = \frac{6}{3} \\
 \boxed{x = 2}
 \end{array}$$

$$\begin{array}{r}
 7y = 6x + 9 \\
 7y = 6(2) + 9 \\
 7y = 12 + 9 \\
 7y = 21 \\
 \frac{7y}{7} = \frac{21}{7} \\
 \boxed{y = 3}
 \end{array}$$

Angles	<p>If a quadrilateral is a parallelogram, the 2 pairs of opposite angles are congruent.</p>	
	<p>If a quadrilateral is a parallelogram, the <u>consecutive</u> angles are <u>supplementary</u>.</p> <p>same side add to equal 180°</p>	
	<p>If a quadrilateral is a parallelogram and one angle is a right angle, then all angles are right angles.</p>	

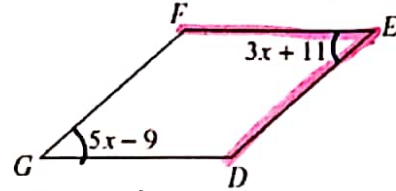
EX3. Solve for x and y .



$$\begin{array}{r} 11x = 55 \\ \hline x = 5 \end{array}$$

$$\begin{array}{r} 5y + 55 = 180 \\ -55 \quad -55 \\ \hline 5y = 125 \\ \hline y = 25 \end{array}$$

EX4. Find the measure of $\angle FED$.

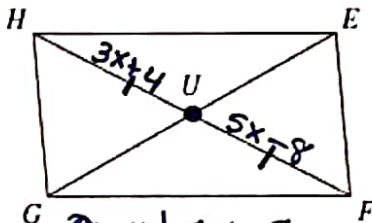


$$\begin{array}{r} 5x - 9 = 3x + 11 \\ -3x \quad -3x \\ \hline 2x - 9 = 11 \\ +9 \quad +9 \\ \hline 2x = 20 \\ \hline x = 10 \end{array}$$

$$\begin{aligned} \angle FED &= 3(10) + 11 \\ \angle FED &= 41^\circ \end{aligned}$$

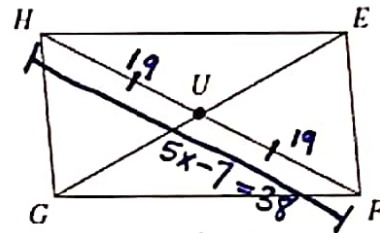
Diagonals	If a quadrilateral is a parallelogram, the diagonals <u>bisect</u> each other. <i>cut in half</i>	
	If a quadrilateral is a parallelogram, the diagonals form two congruent triangles.	 SSS SAS ASA AAS HL

EX5. Given $UH = 3x + 4$ and $UF = 5x - 8$, solve for x .



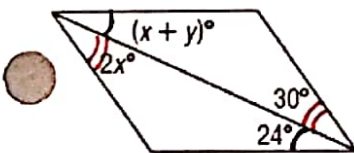
$$\begin{array}{r} 3x + 4 = 5x - 8 \\ -3x \quad -3x \\ \hline 4 = 2x \\ +8 \quad +8 \\ \hline 12 = 2x \\ \hline x = 6 \end{array}$$

EX6. Given $UH = 19$ and $FH = 5x - 7$, solve for x .



$$\begin{array}{r} 5x - 7 = 19 \\ +7 \quad +7 \\ \hline 5x = 26 \\ \hline x = 5.2 \end{array}$$

EX7. Solve for x and y .



$$\begin{array}{r} x + y = 24 \\ 15 + y = 24 \\ -15 \quad -15 \\ \hline y = 9 \end{array}$$

$$\begin{array}{r} 2x = 30 \\ \hline x = 15 \end{array}$$