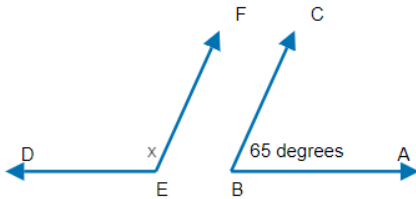


Warmup

1. Calculate value of $\angle FED$.

2. Calculate:

$$-2s - 5s = \underline{\hspace{2cm}}$$

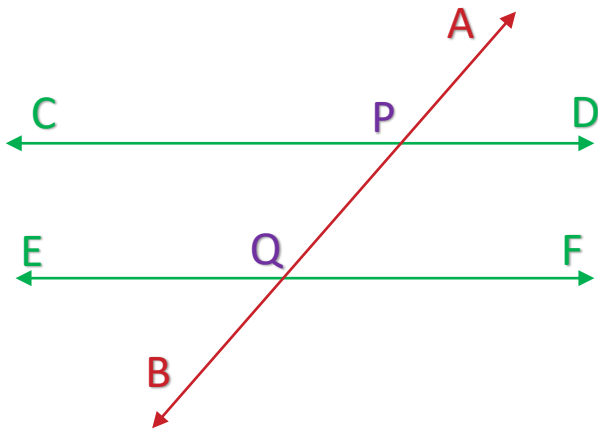
$$4s - -1s = \underline{\hspace{2cm}}$$

3. Calculate the value of x :

$$-4x + 212 = 180$$

I. Transversals

Transversal: A line that intersects parallel lines

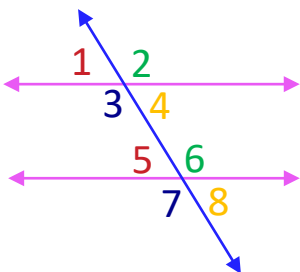


Line AB is the transversal

Line CD is parallel to Line EF

Point P and Point Q are points where the transversal intersects the parallel lines

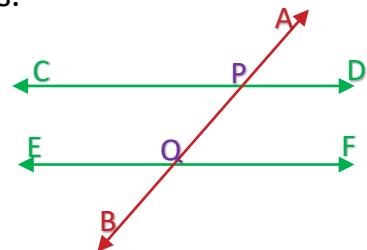
Corresponding Angles: Angles on the same side of the transversal and the corresponding side of the parallel line.

Corresponding Angles are congruent.

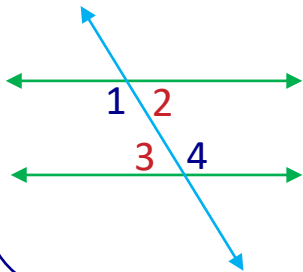
The corresponding angles are:

 $\angle 1$ and $\angle 5$ $\angle 2$ and $\angle 6$ $\angle 3$ and $\angle 7$ $\angle 4$ and $\angle 8$

List all the corresponding angle pairs.



Alternate Interior Angles: Angles on the opposite side of the transversal and between the parallel lines.

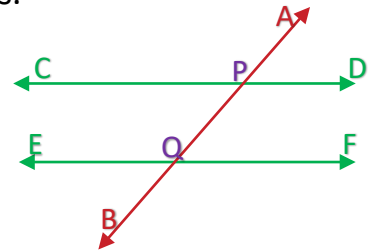


The alternate interior angles are:

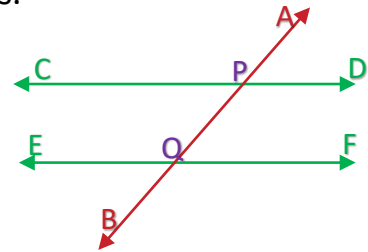
$\angle 1$ and $\angle 4$

$\angle 2$ and $\angle 3$

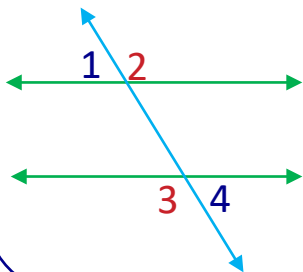
List all the alternate interior angle pairs.



List all the alternate exterior angle pairs.



Alternate Exterior Angles: Angles on the opposite side of the transversal and on the outside of the parallel lines.



The alternate interior angles are:

$\angle 1$ and $\angle 4$

$\angle 2$ and $\angle 3$

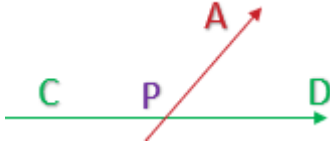
5.

6.

7.

II. Angle Measures for Parallel Lines and a Transversal

Angles are called supplementary when their _____ equals _____ degrees.

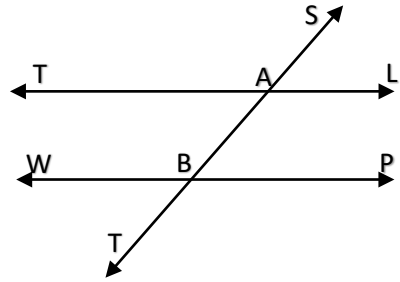


$\angle CPA$ and $\angle APD$ are supplementary angles.

$$\angle CPA = 105^\circ$$

$$\angle APD = \underline{\hspace{2cm}}^\circ$$

Use the angle relationships of a transversal to calculate the measure of each angle.



$$\angle SAT = 135^\circ$$

$$\angle SAL = \underline{\hspace{2cm}}^\circ$$

$$\angle TAB = \underline{\hspace{2cm}}^\circ$$

$$\angle ABW = \underline{\hspace{2cm}}^\circ$$

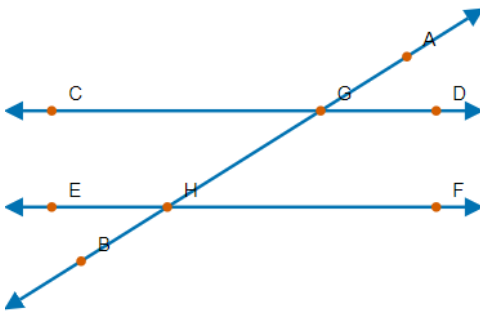
$$\angle SAT = \underline{\hspace{2cm}}^\circ$$

$$\angle LAB = \underline{\hspace{2cm}}^\circ$$

$$\angle PBT = \underline{\hspace{2cm}}^\circ$$

$$\angle PBA = \underline{\hspace{2cm}}^\circ$$

8. $CD \parallel EF$. Line GF intersects the parallel lines. $\angle AGC = 148^\circ$



$$\angle AGD = \underline{\hspace{2cm}}$$

$$\angle CGH = \underline{\hspace{2cm}}$$

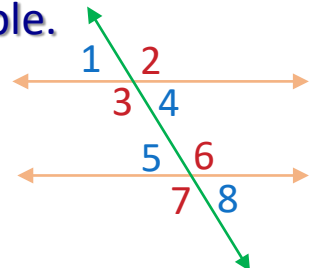
$$\angle DGH = \underline{\hspace{2cm}}$$

9.

III. Using the Transversal to Calculate the Value of a Variable.

To calculate angle measures given algebraic expressions:

1. Determine the relationship of the angles
2. Combine like-terms
3. Solve the 2-step equation for x
4. Check the answer

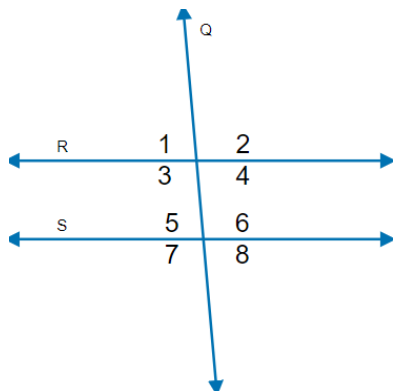


$$\angle 7 = 5x + 75 \text{ and } \angle 8 = -2x + 180 \text{ Find the value of } x$$

10. Line R || Line S.

$$\angle 3 = 15x + 55$$

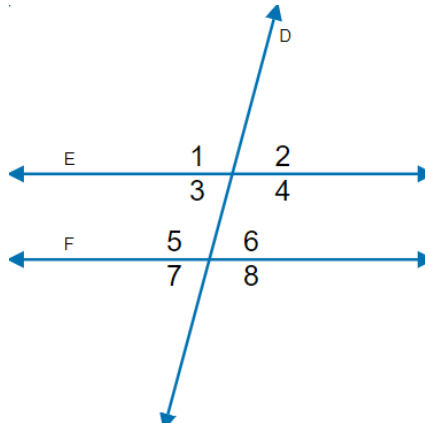
$$\angle 5 = 12x + 71$$



11. Line E || Line F.

$$\angle 6 = -4x + 169$$

$$\angle 8 = -7x + 187$$

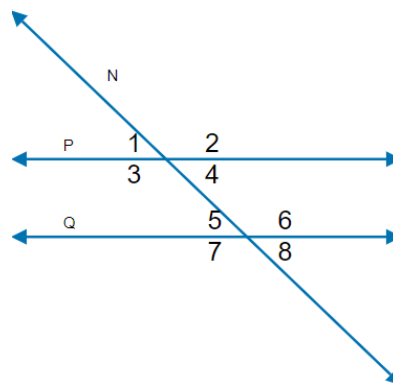


IV. Calculating Angle Measures using Algebraic Expressions

$$\angle 6 = 5x + 61 \text{ and } \angle 8 = -3x + 199$$

The value of x = _____

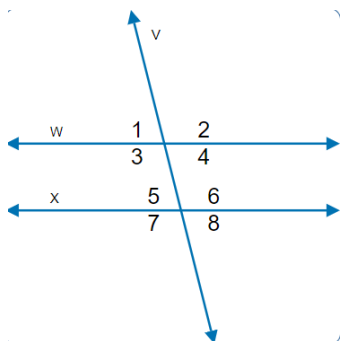
$$\angle 5 = \underline{\hspace{2cm}}$$



$$\angle 3 = -5x + 86 \text{ and } \angle 8 = 2x + 100$$

The value of x = _____

$$\angle 2 = \underline{\hspace{2cm}}$$



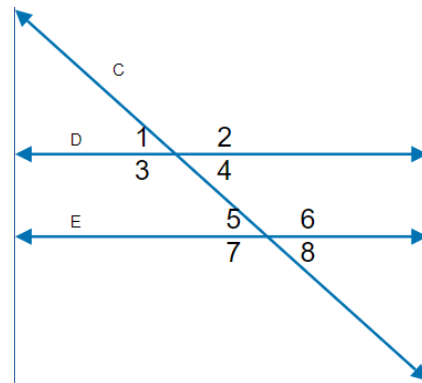
12. Line D || Line E.

$$\angle 6 = 5x - 28$$

$$\angle 8 = 8x + 26$$

The value of x = _____

$$\angle 5 = \underline{\hspace{2cm}}$$

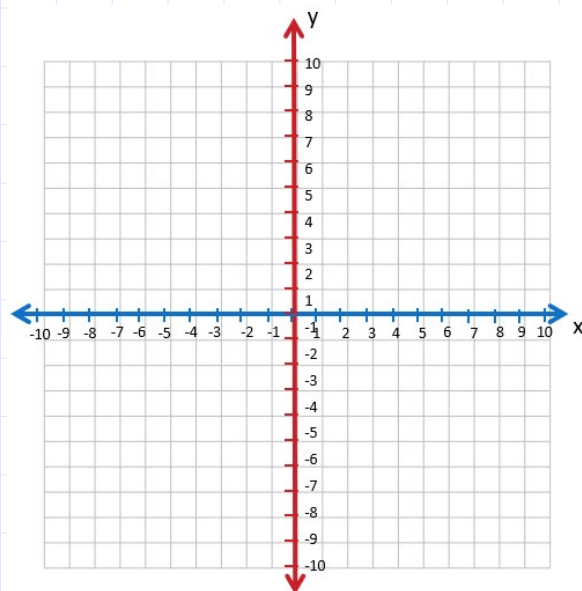


V. Practice

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