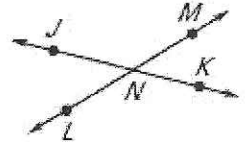
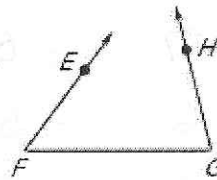
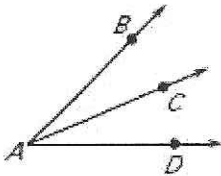


Geometry
Section 1.5

Name: Key Date: _____
Angle Pair Relationships Practice Worksheet

Are the indicated angles *adjacent*?

1. yes $\angle BAC$ and $\angle CAD$ 2. No $\angle EFG$ and $\angle HGF$ 3. No $\angle JNM$ and $\angle LNK$



$\angle 1$ and $\angle 2$ are *complementary* angles. Given the measure of $\angle 1$, find $m\angle 2$.

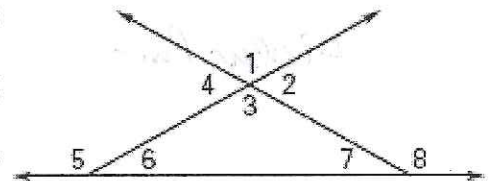
6. $m\angle 1 = 52^\circ$, $m\angle 2 = \underline{38^\circ}$ 7. $m\angle 1 = 76^\circ$, $m\angle 2 = \underline{14^\circ}$ 8. $m\angle 1 = 19^\circ$, $m\angle 2 = \underline{71^\circ}$

$\angle 1$ and $\angle 2$ are *supplementary* angles. Given the measure of $\angle 1$, find $m\angle 2$.

9. $m\angle 1 = 52^\circ$, $m\angle 2 = \underline{128^\circ}$ 10. $m\angle 1 = 76^\circ$, $m\angle 2 = \underline{104^\circ}$ 11. $m\angle 1 = 19^\circ$, $m\angle 2 = \underline{161^\circ}$

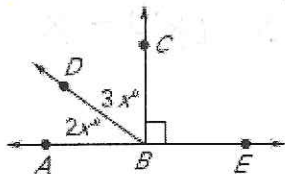
Using the diagram, tell whether the angles are *vertical angles*, a *linear pair*, or *neither*.

12. Linear Pair $\angle 1$ and $\angle 2$ 13. vertical $\angle 1$ and $\angle 3$
14. Linear Pair $\angle 1$ and $\angle 4$ 15. neither $\angle 1$ and $\angle 5$
16. neither $\angle 1$ and $\angle 6$ 17. neither $\angle 1$ and $\angle 7$
18. neither $\angle 1$ and $\angle 8$ 19. vertical $\angle 2$ and $\angle 4$



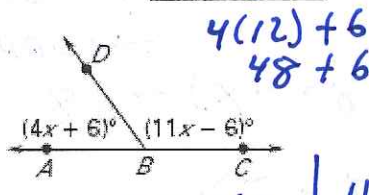
Use the diagrams to find the indicated measurements.

20. $x = \underline{18^\circ}$ 21. $x = \underline{12^\circ}$ 22. $x = \underline{10^\circ}$
 $2x \rightarrow m\angle ABD = \underline{36^\circ}$ $m\angle ABD = \underline{54^\circ}$ $m\angle ABD = \underline{101^\circ}$
 $3x \rightarrow m\angle DBC = \underline{54^\circ}$ $m\angle DBC = \underline{126^\circ}$ $m\angle DBC = \underline{79^\circ}$

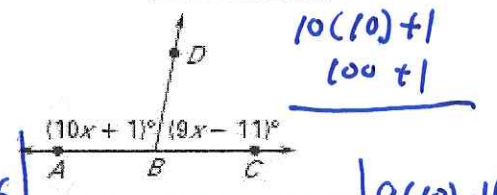


$$\begin{aligned} 5x &= 90 \\ x &= 18^\circ \end{aligned}$$

Given: $m\angle A = (4x - 2)^\circ$ and $m\angle B = (11x + 17)^\circ$



$$\begin{aligned} 4(12) + 6 &= 48 + 6 \\ 15x &= 180 \\ x &= 12^\circ \end{aligned}$$



$$\begin{aligned} 10(10) + 1 &= 100 + 1 \\ 19x + 1 - 11 &= 180 \\ 19x - 10 &= 180 \\ 19x &= 190 \\ x &= 10^\circ \end{aligned}$$

23. Find x if the angles are *complementary*.

$$\begin{aligned} 15x + 15 &= 90 \\ 15x &= 75 \\ x &= 5^\circ \end{aligned}$$

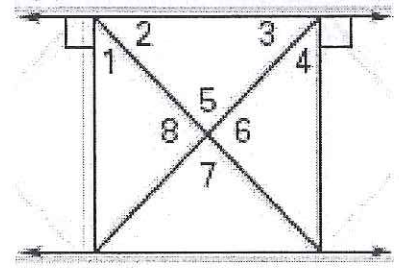
24. Find x if the angles are *supplementary*.

$$\begin{aligned} 15x + 15 &= 180 \\ 15x &= 165 \\ x &= 11^\circ \end{aligned}$$

Stair Railing: A stair railing is designed as shown in the figure.

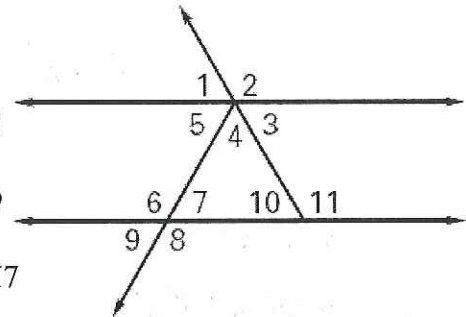
Use the angles identified in the figure to **name two pairs** of the indicated type of angle pair.

25. Complementary angles $\angle 1$ & $\angle 2$ $\angle 3$ & $\angle 4$
26. Supplementary angles $\angle 5$ & $\angle 6$ $\angle 6$ & $\angle 7$
28. Vertical angles $\angle 5$ & $\angle 7$ $\angle 6$ & $\angle 8$
29. Linear pair $\angle 5$ & $\angle 6$ $\angle 6$ & $\angle 7$
30. Adjacent angles $\angle 5$ & $\angle 6$ $\angle 3$ & $\angle 4$



Using the diagram, tell whether the angles are *vertical angles*, a *linear pair*, or *neither*.

31. Linear Pair $\angle 1$ and $\angle 2$ 32. vertical $\angle 1$ and $\angle 3$
33. neither $\angle 2$ and $\angle 4$ 34. neither $\angle 4$ and $\angle 5$
35. vertical $\angle 6$ and $\angle 8$ 36. Linear Pair $\angle 8$ and $\angle 9$
37. Linear Pair $\angle 11$ and $\angle 10$ 38. neither $\angle 10$ and $\angle 7$



Draw a picture and write an equation to help you solve the following problems.

39. 11.25° & 78.75° The measure of one angle is 7 times the measure of its *complement*.
Find the measure of each angle. $\rightarrow x = \text{one of the angles}$
 $x = 7 \cdot (90 - x)$ $\rightarrow \text{complement is } 90 - x$
 $x = 630 - 7x$
 $8x = 63$ $\rightarrow x = 78.75^\circ$ complement $\rightarrow 11.25^\circ$
40. 71° & 109° The measure of one angle is 38° less than the measure of its *supplement*.
Find the measure of each angle. $x = \text{one of the angles}$
 $\rightarrow \text{supplement is } 180 - x$
 $x = (180 - x) - 38$
 $x = 142 - x$
 $2x = 142$
 $x = 71^\circ$ $\rightarrow \text{supplement is } 109^\circ$