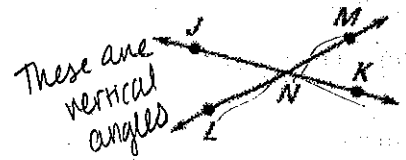
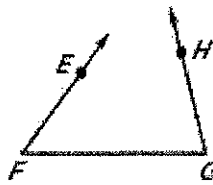
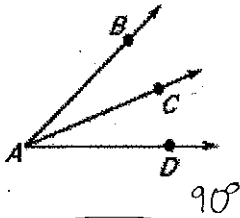


Are the indicated angles adjacent?

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



These are vertical angles

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

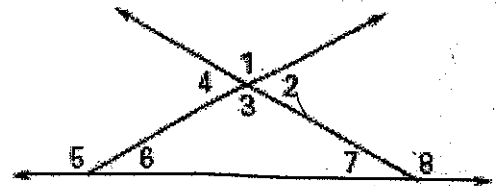
6. $m\angle 1 = 52^\circ$, $m\angle 2 = \underline{38}$ 7. $m\angle 1 = 76^\circ$, $m\angle 2 = \underline{14}$ 8. $m\angle 1 = 19^\circ$, $m\angle 2 = \underline{71^\circ}$

$\angle 1$ 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. $m\angle 1 = 19^\circ$, $m\angle 2 = \underline{161^\circ}$

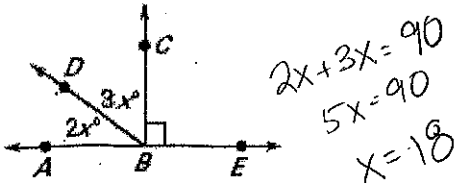
Using the diagram, tell whether the angles are vertical angles, a linear pair, or neither.

12. Linear Pair $\angle 1$ and $\angle 2$ 13. vertical $\angle 1$ and $\angle 3$
 14. LP $\angle 1$ 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 $\angle 4$

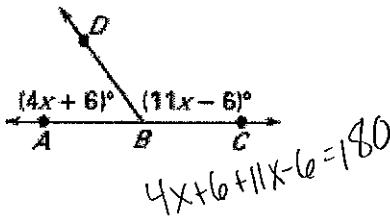


Use the diagrams to find the indicated measurements.

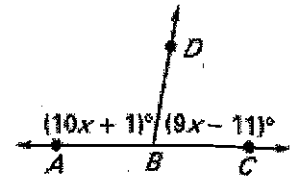
20. $x = \underline{18}$ 21. $x = \underline{12}$ 22. $x = \underline{10}$
 $m\angle ABD = \underline{36}$ $m\angle ABD = \underline{54}$ $m\angle ABD = \underline{101^\circ}$
 $m\angle DBC = \underline{54}$ $m\angle DBC = \underline{126}$ $m\angle DBC = \underline{79^\circ}$



$2x + 3x = 90$
 $5x = 90$
 $x = 18$



$4x + 6 + 11x - 6 = 180$



$10x + 1 + 9x - 11 = 180$

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

23. Find x if the angles are complementary. 24. Find x if the angles are supplementary.

$4x - 2 + 11x + 17 = 90$

$x = 5$

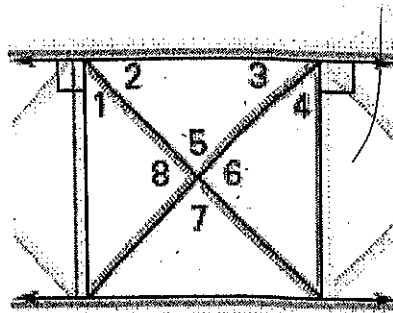
$4x - 2 + 11x + 17 = 180$

$x = 11$

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

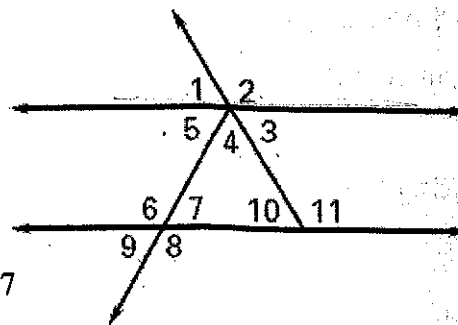
Use the angles identified in the figure to **name two pairs** of the indicated type of angle pair.

25. Complementary angles (90°) $\angle 2$ & $\angle 1$ $\angle 3$ & $\angle 4$
26. Supplementary angles (180°) $\angle 8$ & $\angle 7$ or 5 $\angle 6$ & $\angle 5$ or 7
28. Vertical angles $\angle 5$ & $\angle 7$ $\angle 8$ & $\angle 6$
29. Linear pair $\angle 5$ & $\angle 8$ $\angle 6$ & $\angle 7$
30. Adjacent angles $\angle 3$ & $\angle 4$ $\angle 1$ & $\angle 2$



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

31. LP $\angle 1$ and $\angle 2$
32. VA $\angle 1$ and $\angle 3$
33. neither $\angle 2$ and $\angle 4$
34. neither (adjacent) $\angle 4$ and $\angle 5$
35. VA $\angle 6$ and $\angle 8$
36. LP $\angle 8$ and $\angle 9$
37. LP $\angle 11$ 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 ⁹⁰complement. Find the measure of each angle.

$$x + 7x = 90$$

$$8x = 90$$

$$x = 11.25$$

$$90 - 11.25 = 78.75$$

40. 109/71 The measure of one angle is 38° less than the measure of its ¹⁸⁰supplement. Find the measure of each angle.

$$x + (x - 38) = 180$$

$$2x = 218$$

$$x = 109$$

$$180 - 109 = 71$$