

#### 8-4: Solve Problems Using Angle Relationships

1. Sample answer: Intersecting lines form adjacent angles that share a ray. They also form vertical angles, which are formed by opposite rays and are equal in measure. They can form complementary angles, with measures that total  $90^\circ$ . They will form supplementary angles, with measures that total  $180^\circ$ .
2. No; Sample answer: Vertical angles are opposite each other and only share a vertex. Adjacent angles share a vertex and a ray.
3. No; As long as two angles total  $90^\circ$  they are considered complementary, whether they are next to each other or not. The same is true for two supplementary angles - they just need to total  $180^\circ$ .
4. Sample answer:  $\angle 1$  and  $\angle 2$ ,  $\angle 4$  and  $\angle 5$
5.  $\angle 1$  and  $\angle 3$
6. 10
7.  $\angle x$ ,  $\angle z$
8.  $\angle KOL$  and  $\angle LOM$ ,  $\angle LOM$  and  $\angle MON$
9. 8
10. 19
11. 16
12. 26
13.  $m\angle A = 135^\circ$ ,  $m\angle B = 45^\circ$
14. 415
15.  $m\angle 1 + 50 = 180$   
 $50 + m\angle 3 = 180$   
So  $m\angle 1 = m\angle 3 = 130^\circ$
16. Martin subtracted  $55^\circ$  from  $180^\circ$  instead of from  $90^\circ$ . The correct measure is  $35^\circ$ .
17. 23
18. 60