

### 3.5 Angle Pair Relationships HW

Name the relationship between each set of angle pairs and draw a picture.

- 1) Supplementary Angles
- 2) Complementary Angles
- 3) Linear Pair
- 4) Vertical Angles

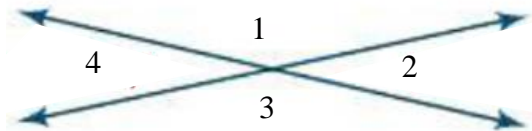
Find the following angle measures using the diagram at the right.

5) If  $m\angle 1 = 145^\circ$ , find  $m\angle 2$ ,  $m\angle 3$ ,  $m\angle 4$ .

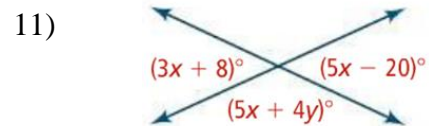
6) If  $m\angle 3 = 168^\circ$ , find  $m\angle 1$ ,  $m\angle 2$ ,  $m\angle 4$ .

7) If  $m\angle 4 = 37^\circ$ , find  $m\angle 1$ ,  $m\angle 2$ ,  $m\angle 3$ .

8) If  $m\angle 2 = 62^\circ$ , find  $m\angle 1$ ,  $m\angle 3$ ,  $m\angle 4$ .

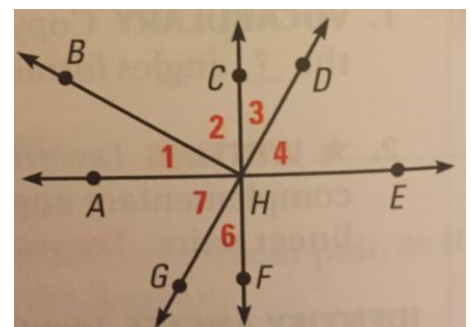


Find the value of each variable and the measure of each labeled angle.



Find the missing values for each statement given that  $m\angle FHE = m\angle BHG = m\angle AHF = 90^\circ$ .

- 13) If  $m\angle 3 = 30^\circ$ , then  $m\angle 6 = \underline{\hspace{2cm}}$ .
- 14) If  $m\angle BHF = 115^\circ$ , then  $m\angle 2 = \underline{\hspace{2cm}}$ .
- 15) If  $m\angle 6 = 27^\circ$ , then  $m\angle 1 = \underline{\hspace{2cm}}$ .



16) If  $m\angle DHF = 133^\circ$ , then  $m\angle CHG = \underline{\hspace{2cm}}$ .

17) If  $m\angle 3 = 32^\circ$ ,  $m\angle 2 = \underline{\hspace{2cm}}$ .

Two lines that are not perpendicular intersect such that  $\angle 1$  and  $\angle 2$  are a linear pair,  $\angle 1$  and  $\angle 4$  are a linear pair, and  $\angle 1$  and  $\angle 3$  are vertical angles. Draw the situation and tell whether the following statement are true or false.

18)  $\angle 1 \cong \angle 2$

21)  $\angle 1 \cong \angle 3$

22)  $\angle 1 \cong \angle 4$

23)  $\angle 2 \cong \angle 3$

24)  $\angle 2 \cong \angle 4$

25)  $\angle 4 + \angle 3 = 180^\circ$

Write a proof for the following.

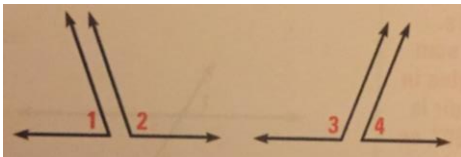
26) Prove the second case of the Congruent Supplements Theorem where two angles are supplementary to congruent angles.

Given:  $\angle 1$  and  $\angle 2$  are supplements.

$\angle 3$  and  $\angle 4$  are supplements.

$\angle 1 \cong \angle 4$

Prove:  $\angle 2 \cong \angle 3$



27) Given:  $\angle 1$  is complementary to  $\angle 3$

$\angle 2$  is complementary to  $\angle 4$

Prove:  $\angle 1 \cong \angle 4$

