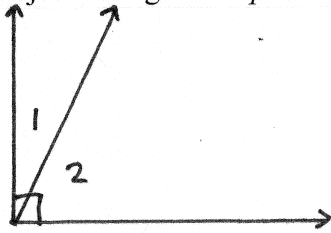


Lesson 1.5 Worksheet

Name: Key

1.) In the space below, sketch an example of adjacent angles that are complementary. Are all complementary angles adjacent angles? Explain.



Not all complementary \angle 's are adjacent.

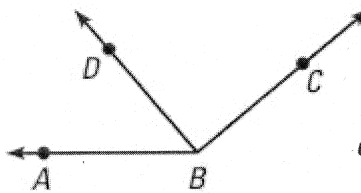
Any two \angle 's whose measure's sum to 90° are complementary



In exercises 2-3, tell whether the indicated angles are adjacent. Explain why or why not.

2.) $\angle ABD$ and $\angle DBC$

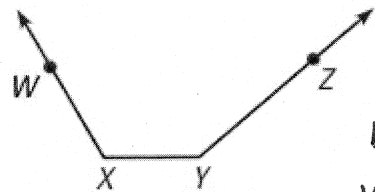
yes, adjacent



The angles share a side (\overrightarrow{BD}) and a vertex (Point B)

3.) $\angle WXY$ and $\angle XYZ$

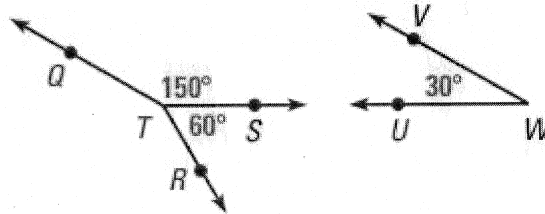
not adjacent



They share a side (\overline{XY}) but not a vertex.

4.) Name a pair of complementary angles and a pair of supplementary angles in the picture below.

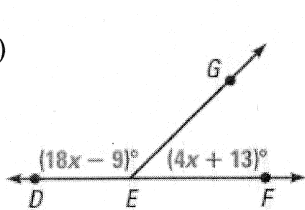
Complementary: $\angle STR$ and $\angle VWU$



Supplementary: $\angle QTS$ and $\angle VWU$

In exercises 5-6, find the measure of $\angle DEG$ and $\angle GEF$.

5.)



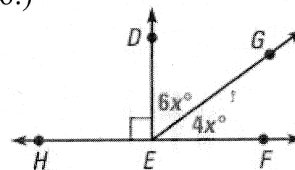
$$18x - 9 + 4x + 13 = 180$$

$$22x + 4 = 180$$

$$22x = 176$$

$$x = 8$$

6.)



$$6x + 4x = 90$$

$$10x = 90$$

$$x = 9$$

$$m\angle DEG = \underline{135^\circ}$$

$$m\angle GEF = \underline{45^\circ}$$

$$m\angle DEG = \underline{54^\circ}$$

$$m\angle GEF = \underline{36^\circ}$$

Use the diagram below to tell whether the angles are *vertical angles*, a *linear pair*, or *neither*.

6.) $\angle 1$ and $\angle 4$

Vertical \angle 's

7.) $\angle 3$ and $\angle 7$

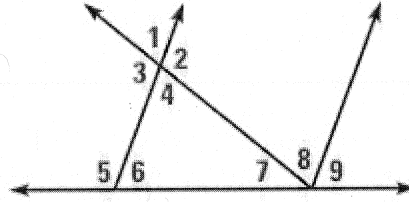
Neither

8.) $\angle 5$ and $\angle 6$

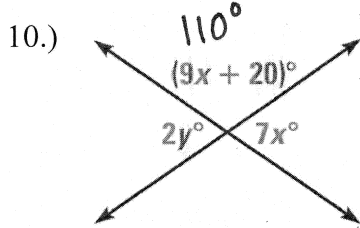
linear pair

9.) $\angle 9$ and $\angle 7$

Neither



Find the values of x and y .



$$9x + 20 + 7x = 180$$

$$16x + 20 = 180$$

$$16x = 160$$

$$x = 10$$

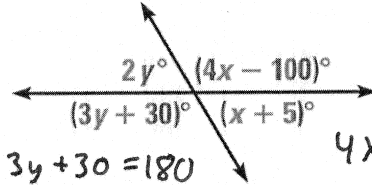
$$2y + 110 = 180$$

$$2y = 70$$

$$y = 35$$

$$x = 10 \quad y = 35$$

11.)



$$2y + 3y + 30 = 180$$

$$5y + 30 = 180$$

$$5y = 150$$

$$y = 30$$

$$4x - 100 + x + 5 = 180$$

$$5x - 95 = 180$$

$$5x = 275$$

$$x = 55$$

$$x = 55 \quad y = 30$$

State whether the following statements are always, sometimes, or never true. Explain your reasoning.

12.) An obtuse angle has a complement. *Never.* Obtuse \angle 's measures are larger than 90° , so a 2nd \angle measure only increases the sum.

13.) The complement of an acute angle is an acute angle.

Always. An acute \angle 's measure is $0^\circ < m < 90^\circ$, so you would need a 2nd \angle measure less than 90° to sum to 90° .

14.) A straight angle has a supplement. \angle measure less than 90° to sum to 90° .

15.) The supplement of an acute angle is an obtuse angle. *Never.* A straight \angle 's measure is 180° . A 2nd \angle measure would increase past 180° .

Always. If an \angle 's measure is less than 90° , you would need an \angle measure greater than 90° to sum to 180° .

$\angle A$ and $\angle B$ are complementary. Solve for x , then find $m\angle A$ and $m\angle B$.

$$16.) \quad m\angle A = (11x + 24)$$

$$m\angle B = (x + 18)$$

$$x = 4 \quad m\angle A = 68^\circ \quad m\angle B = 22^\circ$$

$$11x + 24 + x + 18 = 90$$

$$12x + 42 = 90$$

$$12x = 48$$

$$x = 4$$

$\angle A$ and $\angle B$ are supplementary. Solve for x , then find $m\angle A$ and $m\angle B$.

$$17.) \quad m\angle A = (2x - 20)$$

$$m\angle B = (3x + 5)$$

$$x = 39 \quad m\angle A = 58^\circ \quad m\angle B = 122^\circ$$

$$2x - 20 + 3x + 5 = 180$$

$$5x - 15 = 180$$

$$5x = 195$$

$$x = 39$$