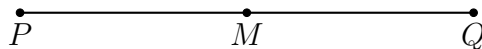


Name:

## 2.5 Homework: Mixed practice

1. Do Now: Given  $M$  bisects  $\overline{PQ}$ ,  $PM = x + 7$ ,  $PQ = 23$ .

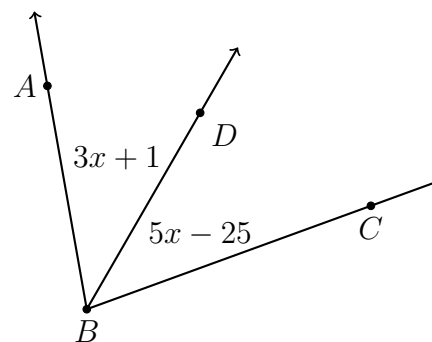
tick marks



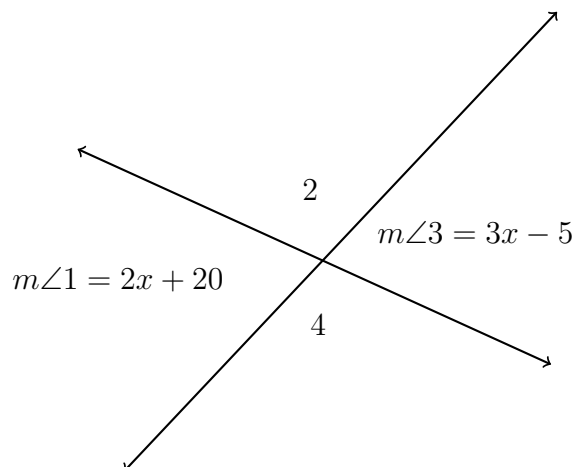
(b) Write an equation and solve for  $x$

(a) Mark the diagram with the values and (c) Check your result

2. The ray  $\overrightarrow{BD}$  bisects  $\angle ABC$ .  $m\angle ABD = 3x + 1$ ,  $m\angle DBC = 5x - 25$ . Find  $m\angle ABC$ .



3. Two lines intersect with vertical angles  $m\angle 1 = 2x + 20$  and  $m\angle 3 = 3x - 5$ . Find  $m\angle 2$ .



4. Write the appropriate name for the type of angle depending on its measure in degrees.  
(acute, right, obtuse, or straight)

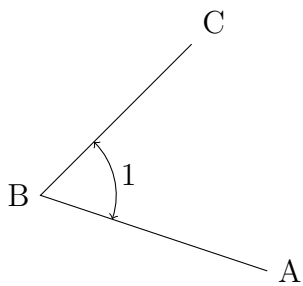
(a)  $m\angle = 90$  : \_\_\_\_\_

(b)  $90 < m\angle < 180$  : \_\_\_\_\_

(c)  $0 < m\angle < 90$  : \_\_\_\_\_

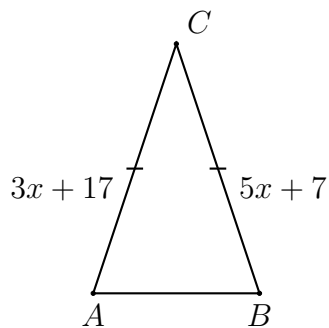
(d)  $m\angle = 180$  : \_\_\_\_\_

5. Write down the name of the given angle three different ways.

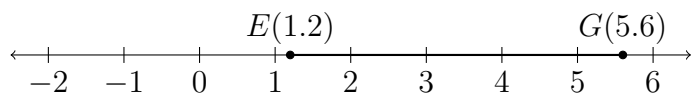


6. Points that are all located on the same plane are \_\_\_\_\_.

7. Spicy: Given isosceles  $\triangle ABC$  with  $\overline{AC} \cong \overline{BC}$ .  $AC = 5x + 7$  and  $BC = 3x + 17$ . Find  $AC$ .



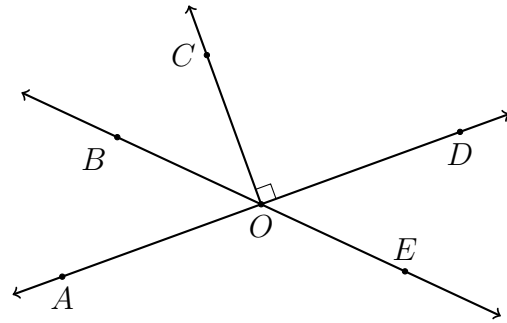
8. Given points on the number line  $E(1.2)$  and  $G(5.6)$  as shown. Find the midpoint  $F$  of  $\overline{EG}$ . Mark it on the number line and label it as an ordered pair.



9. Identify the true statement(s) given  $\angle AOB = 2x$  and  $\angle BOC = 5x + 20$ .

Name: \_\_\_\_\_

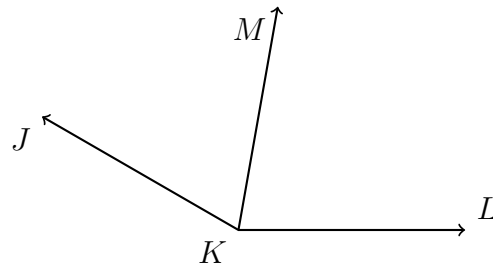
- (a)  $\angle AOB \cong \angle BOC$   
 $2x = (5x + 20)$
- (b)  $\angle AOB, \angle BOC$  are complementary  
 $2x + (5x + 20) = 90^\circ$
- (c)  $\angle AOB$  and  $\angle BOC$  are a linear pair  
 $2x + (5x + 20) = 180^\circ$



Copy the correct equation and solve for  $x$ . Check your answer.

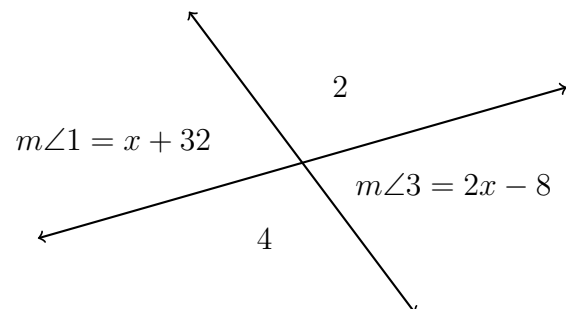
10. The ray  $\overrightarrow{KM}$  bisects  $\angle JKL$ . Given  $m\angle JKM = 4x - 20$  and  $m\angle MKL = 3x + 4$ . Identify the true statement(s).

- (a)  $\angle JKM$  and  $\angle MKL$  are a linear pair  
 $(4x - 20) + (3x + 4) = 180^\circ$
- (b)  $\angle JKM, \angle MKL$  are adjacent and  
 $4x - 20 = 90^\circ$
- (c)  $\angle JKM \cong \angle MKL$   
 $4x - 20 = 3x + 4$

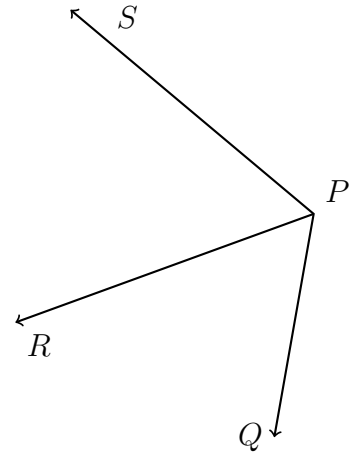


Copy the correct equation and find  $m\angle JKL$ . Check your answer.

11. As shown below, two lines intersect making four angles:  $\angle 1, \angle 2, \angle 3$ , and  $\angle 4$ . Given that  $m\angle 1 = x + 32$  and  $m\angle 3 = 2x - 8$ , find  $m\angle 1$ .



12. An angle bisector is shown below, with  $\overrightarrow{PR}$  bisecting  $\angle QPS$ . Given  $m\angle QPR = 6x - 12$  and  $m\angle QPS = 10x + 4$ , find  $m\angle QPS$ .

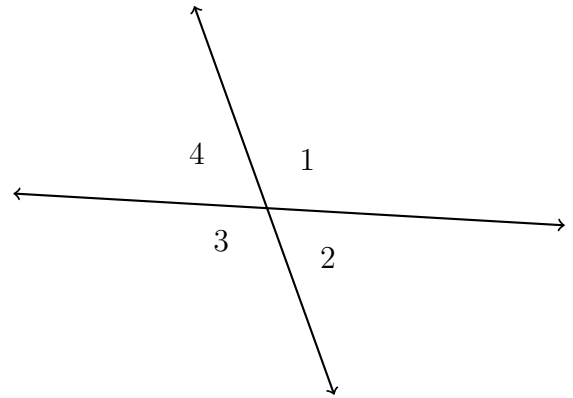


13. As shown below, two lines intersect making four angles:  $\angle 1$ ,  $\angle 2$ ,  $\angle 3$ , and  $\angle 4$ .

(a) Name a pair of vertical angles.

(b) Given  $m\angle 4 = 70^\circ$ , write down  $m\angle 2$ .

(c) Find  $m\angle 1$ .



Name:

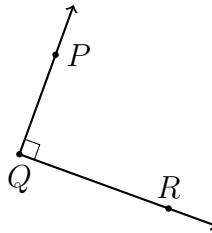
14. Demonstrate your ability to classify angles and use standard terminology.

(a) Which of the following are true with respect to the angle,  $m\angle PQR$ ?

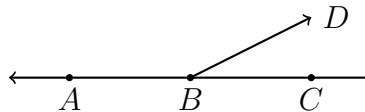
True    False    It is a right angle

True    False    It's measure is  $180^\circ$

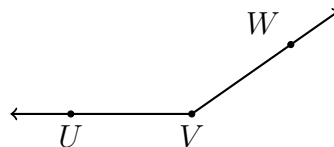
True    False     $\overrightarrow{QP}$  is perpendicular to  $\overrightarrow{QR}$



(b) What is the sum of the degree measures of this linear pair,  $\angle ABD$  and  $\angle CBD$ ?



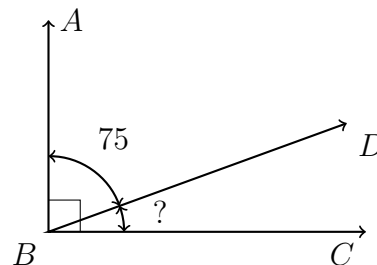
(c) The given angle  $\angle UVW$  is which of the following: acute, obtuse, or right?



15. Apply the Angle Addition postulate. Write an equation to support your work.

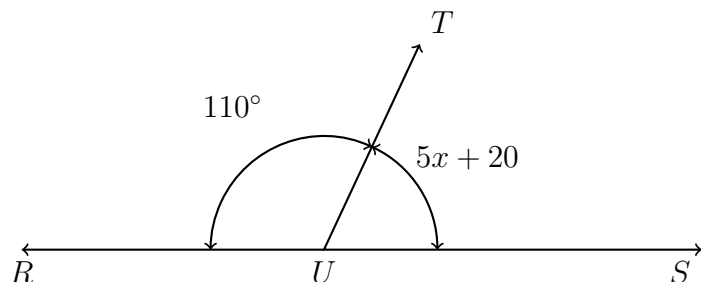
Given  $m\angle ABD = 75^\circ$ ,  $m\angle ABC = 90^\circ$ .

Find  $m\angle CBD$ .



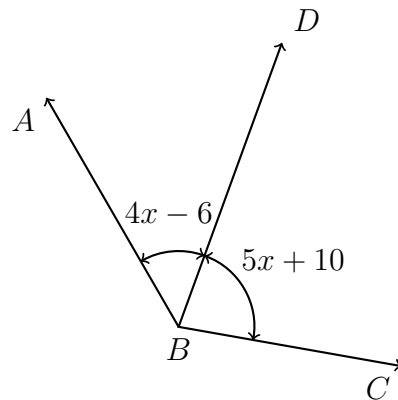
16. A linear pair is formed by two angles,  $m\angle RUT = 110^\circ$  and  $m\angle SUT = 5x + 20$ .

Write an equation, then solve for  $x$ .



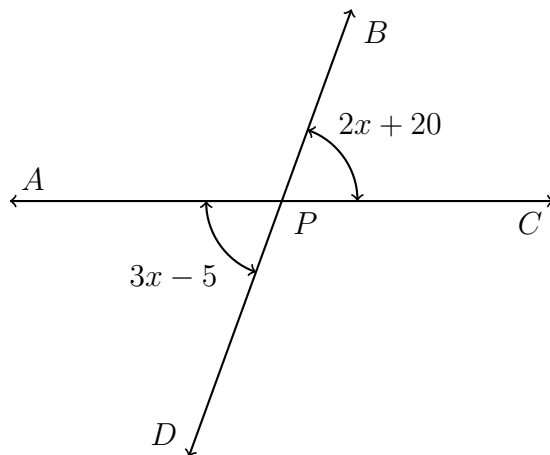
17. Given  $m\angle ABD = 4x - 6$ ,  $m\angle DBC = 5x + 10$ , and  $m\angle ABC = 130^\circ$ , as shown.

Model the situation with an equation, then solve for  $x$ . Check your solution for full credit.



18. Given vertical angles,  $m\angle APD = 3x - 5$ ,  $m\angle BPC = 2x + 20$ , as shown.

Find  $x$ . Check your solution for full credit.

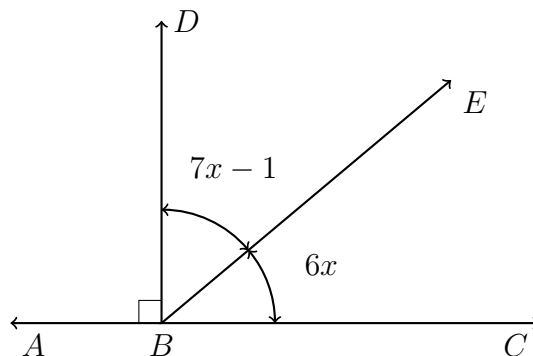


19. In the diagram shown,  $\overrightarrow{BD} \perp \overrightarrow{ABC}$  with angle measures marked. Find  $x$ .

Show the check for full credit.

$$m\angle DBE = 7x - 1^\circ$$

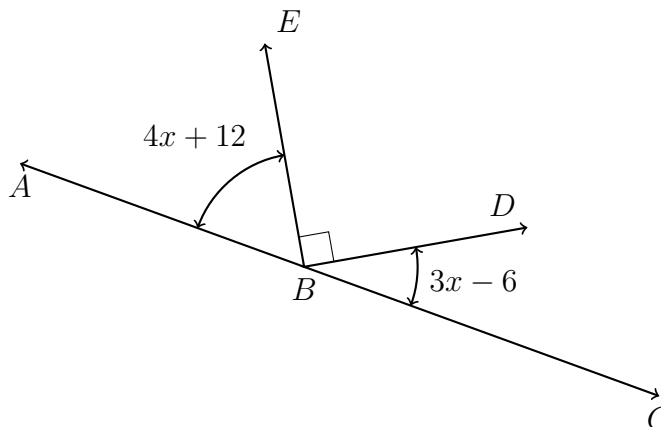
$$m\angle EBC = 6x^\circ$$



Name:

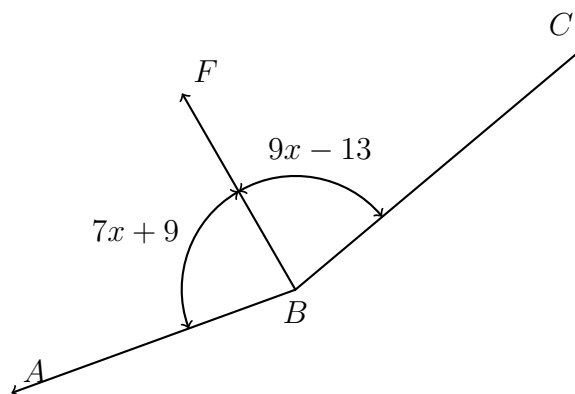
20. Spicy: Given  $\overleftrightarrow{ABC}$ , right angle  $\angle DBE$ ,  $m\angle ABE = 4x + 12$ , and  $m\angle CBD = 3x - 6$ .

Find  $m\angle CBD$ .



21. Spicy: Ray  $\overrightarrow{BF}$  is the angle bisector of  $\angle ABC$ . Given that the angle measures are  $m\angle ABF = 7x + 9$  and  $m\angle CBF = 9x - 13$ .

Find  $m\angle ABC$ .



22. Spicy: Ray  $\overrightarrow{XL}$  is the angle bisector of  $\angle KXM$ . Given  $m\angle JXN = 2x + 3$ .

Find  $x$ .

