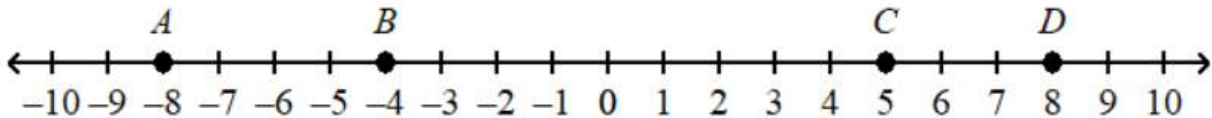


**Section 1: Conditional Statements**

1. Write the following as a conditional statement.  
A midpoint bisects a segment.
  
2. Consider the following statement: A quadrilateral has four sides.
  - a. Write the above statement as a conditional statement.
  
  - b. Write the converse of the conditional statement in part a.
  
  - c. Write the inverse if the conditional statement in part a.
  
  - d. Write the contrapositive of the conditional statement in part a.
  
  - e. If the conditional statement is true and the converse is true then combine the two statements into a biconditional statement.
  
3. What are the two conditional statements that are implied by the biconditional statement,

A statement is conditional if and only if it is in if-then form.

4. Find AB, AC, and CD.



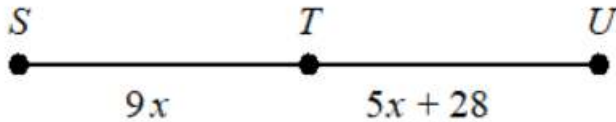
If  $EF = 4x + 15$ ,  $FG = 39$ , and  $EG = 110$ , find the value of  $x$ . The drawing is not to scale.



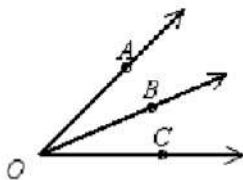
If  $EF = 2x - 12$ ,  $FG = 3x - 15$ , and  $EG = 23$ , find the values of  $x$ ,  $EF$ , and  $FG$ . The drawing is not to scale.



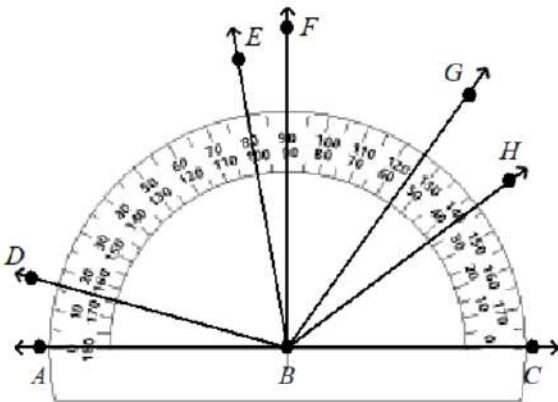
5. If  $T$  is the bisector of  $\overline{SU}$ , find the value of  $x$ . Then, find  $\overline{SU}$



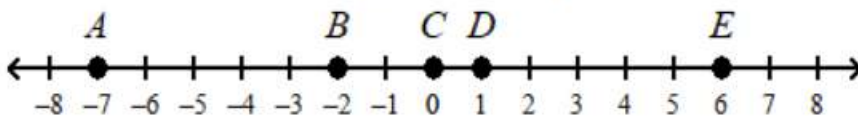
If  $m\angle AOC = 85^\circ$ ,  $m\angle BOC = 2x + 10$ , and  $m\angle AOB = 4x - 15$ , find the degree measure of  $\angle BOC$  and  $\angle AOB$ . The diagram is not to scale.



What are the measures of  $\angle FBG$  and  $\angle ABC$ ? Classify each angle as *acute*, *right*, *obtuse*, or *straight*.



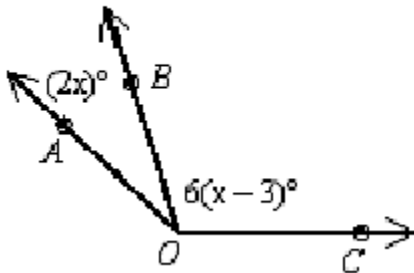
Are  $\overline{AC}$  and  $\overline{BE}$  congruent? Explain.



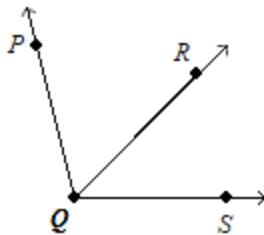
$M(7, 5)$  is the midpoint of  $\overline{RS}$ . The coordinates of  $S$  are  $(8, 7)$ . What are the coordinates of  $R$ ?

$T(6, 12)$  is the midpoint of  $\overline{CD}$ . The coordinates of  $D$  are  $(6, 15)$ . What are the coordinates of  $C$ ?

What is the value of  $x$ ? Identify the missing justifications.



What is the value of  $x$ ? Identify the missing justifications.  
 $m\angle PQR = x - 5$ ,  $m\angle SQR = x - 7$ , and  $m\angle PQS = 100$ .



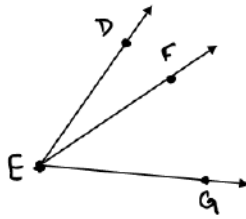
Drawing not to scale

6. Points  $A$ ,  $B$ , and  $C$  are collinear and  $B$  lies between  $A$  and  $C$ . If  $\overline{AC} = 32$ ,  $\overline{AB} = 2x$  and  $\overline{BC} = 6x + 8$  what is  $\overline{BC}$ ?

7. For the following problems:  $\overline{EF}$  bisects  $\angle DEG$  (Picture is not drawn to scale)

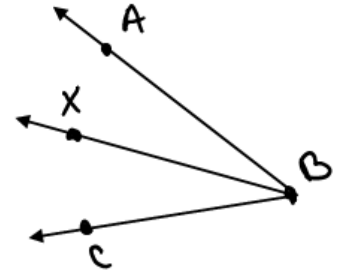
a. If  $m\angle DEG = 64^\circ$  find  $m\angle FEG$

b. If  $m\angle FED = 63^\circ$  find  $m\angle GED$



8. For the following problems:  $\overline{BX}$  is the bisector of  $\angle ABC$  (Picture is not drawn to scale)

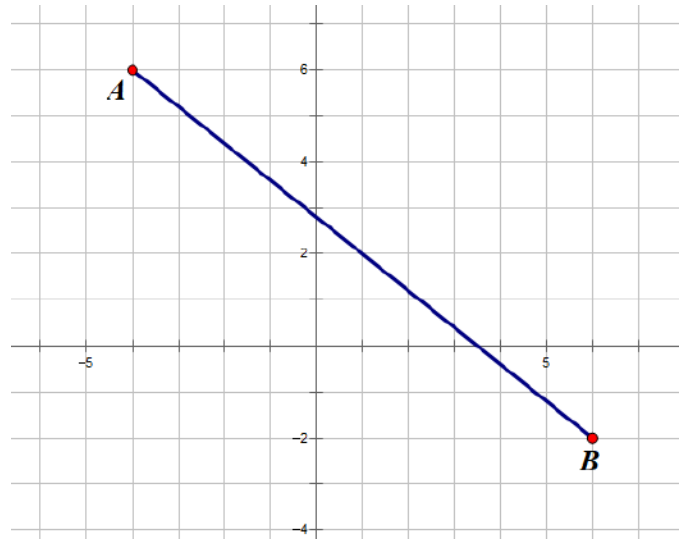
a. If  $m\angle ABX = 3(4x - 8)$  and  $m\angle XBC = 10x + 8$ , find  $m\angle ABC$



b. If  $m\angle ABC = 7x - 4$  and  $m\angle CBX = 7 - x$ , find the value of  $x$ .

9. Use the following diagram to the right:

a. What is the midpoint of  $\overline{AB}$ ?



b. What is the length of  $\overline{AB}$ ?

c. What are the coordinates of the point  $\frac{3}{2}$  of the way from point A to point B?

10. Find the midpoint and distance of the following points:

a. A (-6, 4) and B (-2, -9)

b. X (0, 5) and Y (10, -7)