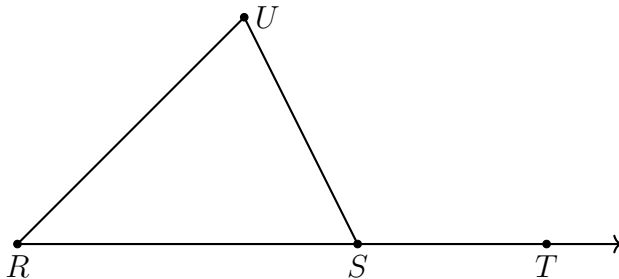


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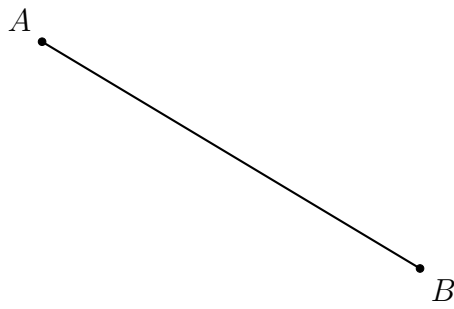
**9.1 Homework: Dilation**

**CCSS.HSG.SRT.B.5**

1. Points that are all located on the same line are \_\_\_\_\_.
2. Given  $C(1, -2)$  and  $D(7, 9)$ , find the coordinates of the midpoint of  $\overline{CD}$ , the point  $M$ .
3. Given the conditional statement, "If two triangles' corresponding sides are congruent, then their corresponding angles are congruent."
  - (a) Write down the conclusion of the statement.
  - (b) Write down the negation of the hypothesis.
  - (c) Write down the converse of the statement.
4. Given  $m\angle R = 50$ ,  $m\angle U = 65$ , and  $m\angle UST = 115$ . Find  $m\angle RSU$ .



5. Construct an equilateral triangle with one side the given line segment  $\overline{AB}$ .



6. Given the square  $BECA$  with  $BE = 2.50$ .

(a) Find the area of  $BECA$ .

(b) Find the perimeter of  $BECA$ .

7. Given  $m\angle A = 75$ ,  $m\angle B = 45$ ,  $m\angle C = 165$ ,  $m\angle DEF = 55$ ,  $m\angle FEG = 15$ .

(a) Find a pair of complementary angles. \_\_\_\_\_

(b) Find a pair of supplementary angles. \_\_\_\_\_

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8. Find the value of  $|\sqrt{11} - \frac{3}{2}| - \sqrt{11}$ .

9. Given  $P(-2, 4)$  and  $Q(1, 0)$ , find the length of  $\overline{PQ}$ .

10. In a proof, each of the following statements are written. Write down the reason that would justify each step.

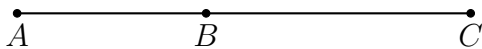
(a)  $2(DE + FG) = 2DE + 2FG$  \_\_\_\_\_ property

(b)  $\overline{EF} \cong \overline{EF}$  \_\_\_\_\_ property

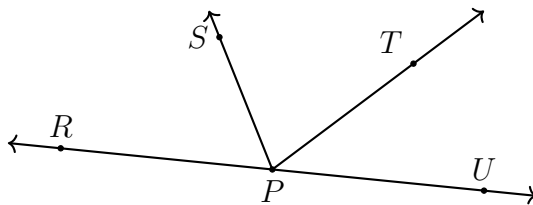
(c)  $DE + EF = FG + EF$  \_\_\_\_\_ property

11. Given  $\overline{ABC}$ ,  $AC = 15$ , and the point  $B$  partitions  $\overline{AC}$  in a ratio of 2:3.

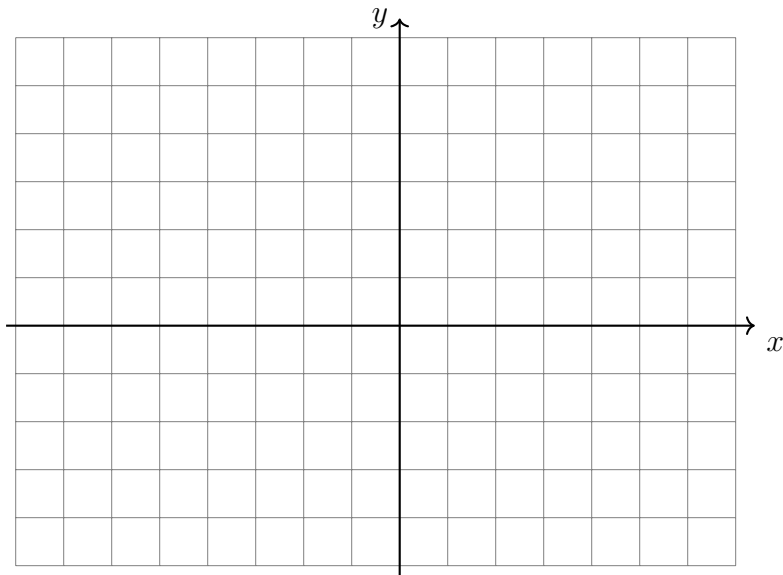
Find  $AB$ .



12. Given the situation in the diagram, answer each question. Circle True or False.



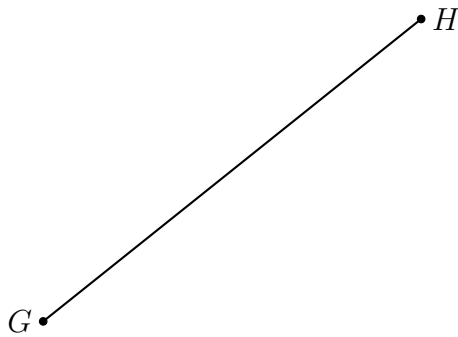
- (a) True or False:  $\angle SPU$  is an obtuse angle.
  - (b) True or False:  $\overrightarrow{PR}$  and  $\overrightarrow{PU}$  are opposite rays.
  - (c) True or False:  $\angle RPT$  and  $\angle SPU$  are a linear pair.
  - (d) True or False:  $\angle SPT$  and  $\angle TPU$  are adjacent.
13. Given  $B(-7, 4)$ ,  $U(5, -1)$ , and  $Z(-7, -1)$ .
- (a) Plot and label the points on the graph, drawing  $\overline{BU}$
  - (b) Draw the legs of the right triangle,  $\overline{BZ}$  and  $\overline{ZU}$ , marking their lengths.
  - (c) Write down the distance formula for  $BU$ , substituting coordinate values.
  - (d) Find the value of  $BU$ .



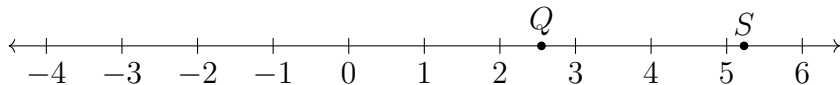
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14. Given the circle  $C$  with circumference  $10\pi$ . Find the area of  $C$ .

15. Construction a perpendicular bisector of the given line segment,  $\overline{GH}$ .



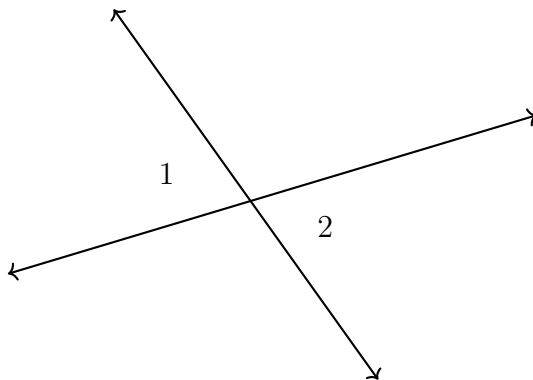
16. Given  $\overleftrightarrow{QS}$  as shown on the number line, with  $Q$  having the coordinate 2.55 and  $S$  the coordinate 5.23.



- (a) Find the value of the coordinate of the point  $R$ , the midpoint of  $\overline{QS}$ .

- (b) The point  $P$  is collinear with  $\overleftrightarrow{QS}$  such that  $Q$  is the midpoint of  $\overleftrightarrow{PS}$ . Mark  $P$  on the line and state the value of its coordinate.

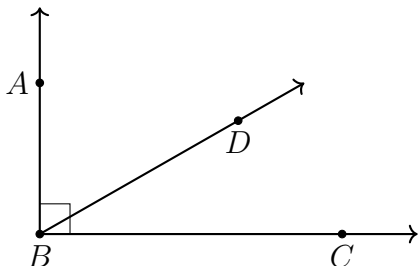
17. Given two vertical angles,  $m\angle 1 = 4x + 6$ ,  $m\angle 2 = 6x - 32$ . Find  $m\angle 1$ .  
For full credit find the  $m\angle 2$  as a check.



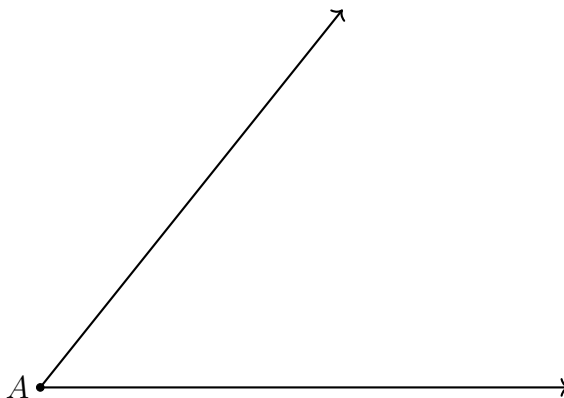
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18. Given  $\overrightarrow{BA} \perp \overrightarrow{BC}$ ,  $m\angle ABD = 2x - 5$ , and  $m\angle DBC = x - 10$ . Find  $m\angle DBC$ .

For full credit, show the check using both angle measures.



19. Construct an angle bisector of the given angle.



20. Spicy: Construct the angle bisectors of the angles of the triangle and their intersection, the incenter.

