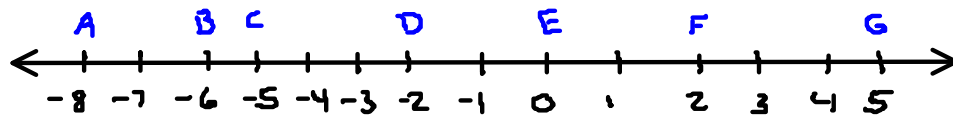


Lengths of Segments, Distance and Midpoint Formulas

Ruler Postulate - Two points on any line can be paired with real numbers so that, given any two points P and Q on the line, P corresponds to zero, and Q corresponds to a positive number.

1. Refer to the number line below to find each measure.



a) AE

b) BD

c) EC

d) FD

e) GA

Segment Addition Postulate - If Q is between P and R then $PQ + QR = PR$.

2. If Q is between P and R , find each missing measure.

a) $PQ = 7$, $QR = 11$, $PR =$

b) $RQ = 15$, $PR = 20$, $QP =$

c) $PQ = 4\frac{2}{3}$, $QR = 1\frac{1}{3}$, $RP =$

3. If Q is between P and R , find the value of x and the length of each segment.

a) $PQ = 2x$
 $QR = 4x + 6$
 $PR = 24$

b) $QP = 3x + 7$

$RQ = 2x + 8$

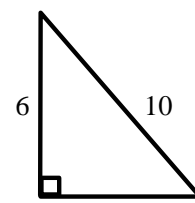
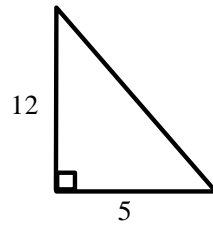
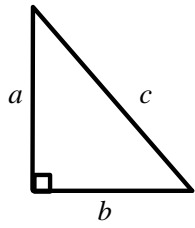
$RP = 6x$

c) $PQ = 4 - x$

$RQ = 2(x + 3)$

$RP = 5x - 2$

Pythagorean Theorem $a^2 + b^2 = c^2$

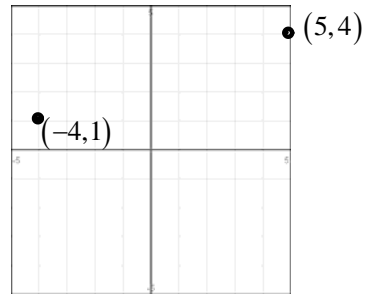


Distance Formula $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

$(0,1)$ and $(3,2)$

$(-4,6)$ and $(-3,-1)$

4. Use the coordinate plane to find the measure of \overline{AB} . Round your answer to the nearest hundredth.

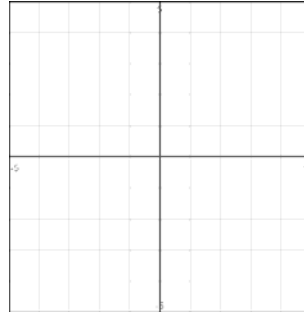


Midpoint Formula $(x_m, y_m) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$

(8, 7) and (-4, 1)

(-4, 6) and (-3, -1)

5. Find the coordinates of point A if $C(2,-1)$ is the midpoint of \overline{AB} and the coordinates of B are $(4,1)$.



6. If F is the midpoint of \overline{DE} , $DF = 3x + 4$ and $FE = 2x + 12$, find the value of x and the measure of \overline{DE} .