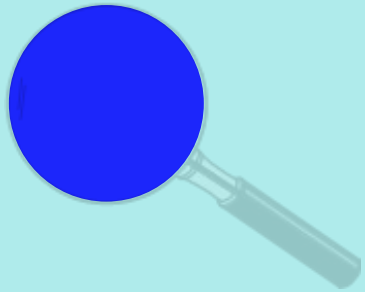


Bell Ringer # 1

Solve each equation.

☆ 26 = 8 + v

☆ 10n = 40

☆4x + 7 = 21 - 3x

☆4x + 23 = 5 - 2x

Pull for Teacher's Notes

Length of a Line Segment on a number line

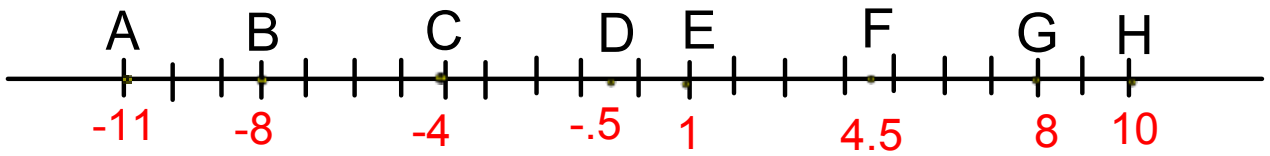
Pull for Hint

Pull for Answer

The **Distance Formula** gives the distance between any two points. It can be used to find the length of a line segment.

Drag and drop the coordinates into the formula.

$$d = | x_1 - x_2 |$$



AC= | -11 - -4 | = |-7| = 7

DG= | -.5 - 8 | = |-8.5| = 8.5

CH= | -4 - 10 | = |-14| = 14

DF= | -.5 - 4.5 | = |-5| = 5

Midpoint on a Line Segment

Pull for Formula

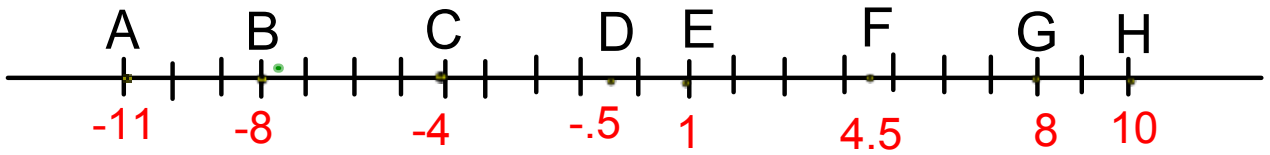
Pull for Teacher's Notes

Length of a Line Segment on a number line

The **Midpoint Formula** gives the coordinate in the middle of any two points.

Drag and drop the coordinates into the formula.

midpoint = $(x_1 + x_2)/2$



AC= (-11 + -4)/2 = -15/2 = 7.5

DG= (-.5 + 8)/2 = 7.5/2 = 3.75

CH= (-4 + 10)/2 = 6/2 = 3

DF= (-.5 + 4.5)/2 = 4/2 = 2

Pull for Hint

Pull for Answer

Pythagorean Theorem

Pull for Hint

Length of a Line Segment

That's right!

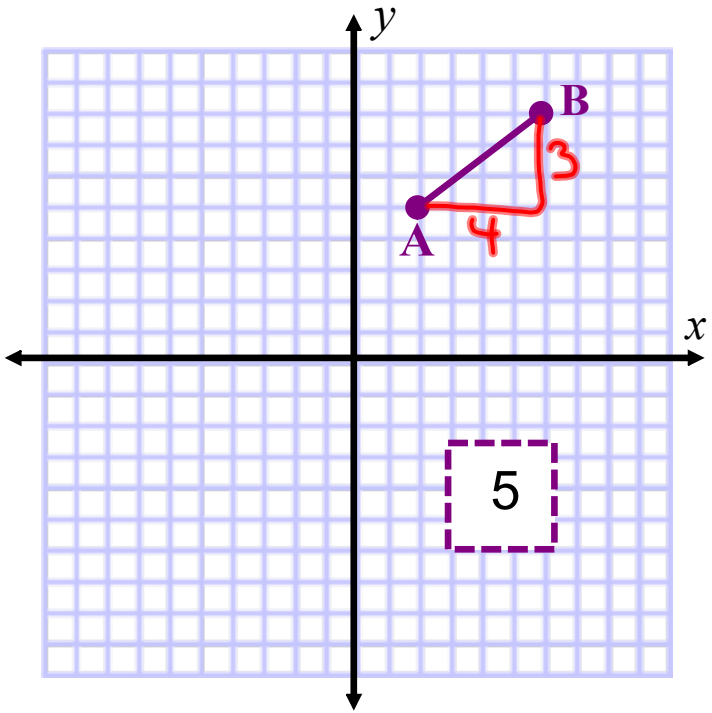
$4^2 + 3^2 = c^2$

$16 + 9 = c^2$

$25 = c^2$

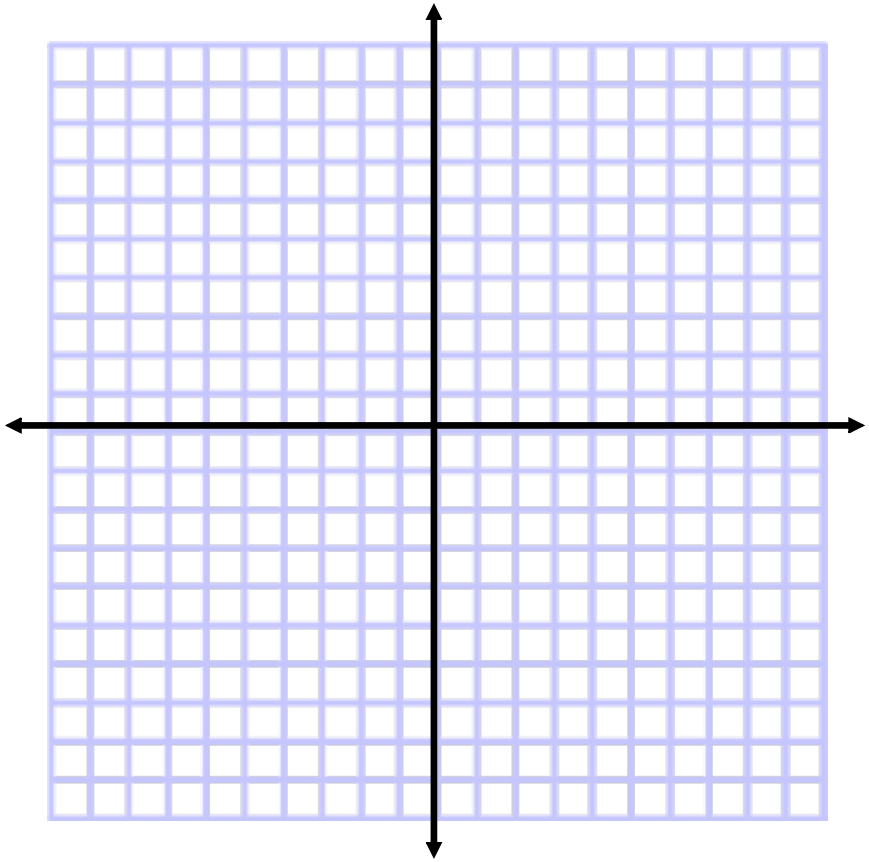
$\sqrt{25} = c$

$5 = c$



Practice

Draw a line segment.
Find its length.



Pull for Formula

Pull for Teacher's Notes

Length of a Line Segment

The **Distance Formula** gives the distance between any two points. It can be used to find the length of a line segment.

Drag and drop the coordinates into the formula.

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

$$d = \sqrt{(3 - 5)^2 + (1 - 4)^2}$$

A = (3 , 1) B = (5 , 4)

$\sqrt{(-2)^2+(-3)^2} = \sqrt{4+9} = \sqrt{13}$

Pull for Hint

Pull for Answer

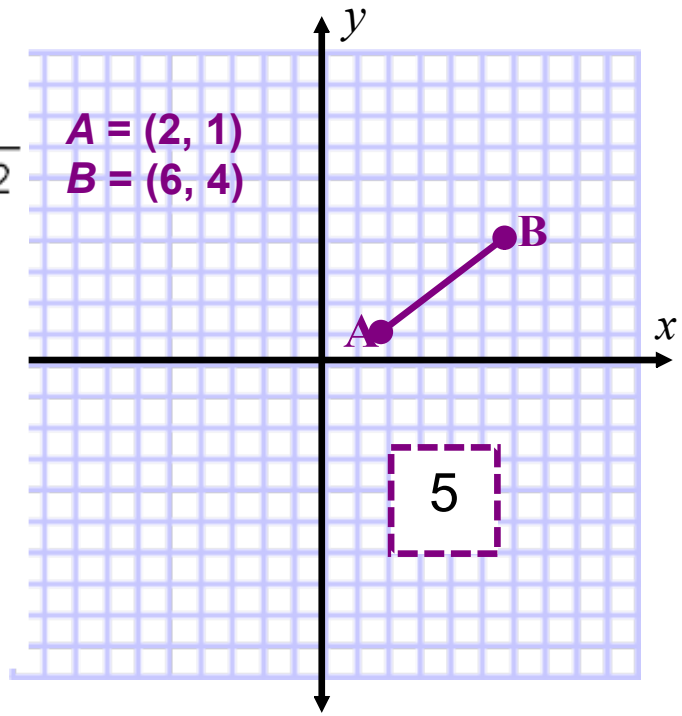
Length of a Line Segment

That's right!

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

$$d = \sqrt{(6-2)^2 + (4-1)^2}$$

$$= \sqrt{4^2 + 3^2} = \sqrt{25} = 5$$



Pull for Hint

Practice

Use the distance formula to find the length of segment AB with A(-3,4) and B(-2,-1)

$\sqrt{(-3-(-2))^2+(4-(-1))^2}$

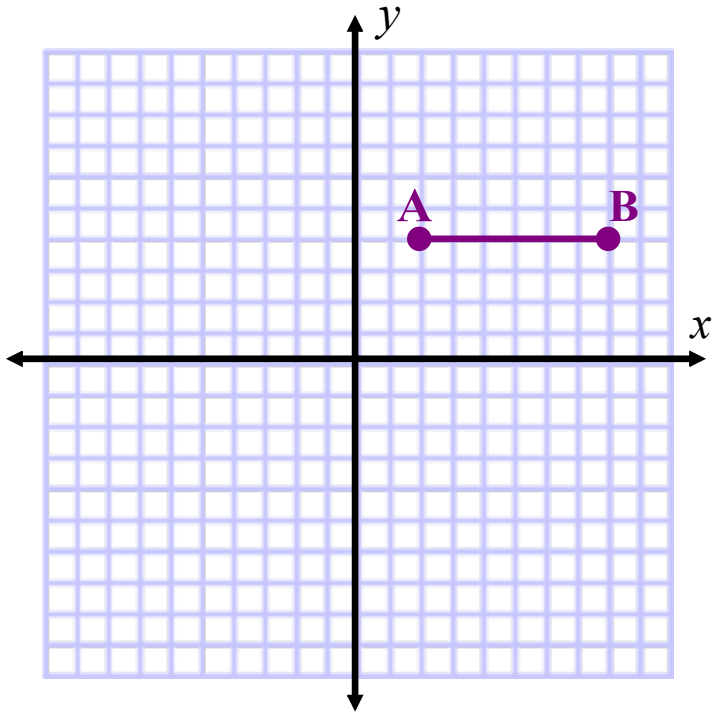
$\sqrt{(-1)^2+(5)^2}=\sqrt{1+25}=\sqrt{26}$

Answer

$AB \approx 5.1$

Pull for Formula

Midpoint of a Line Segment



What is the **midpoint** of segment *AB*? Use a pen to mark the units as you count.

Tap to Check Answer

What if the line were slanted? How would you find the midpoint?

Pull for Teacher's Notes

Midpoint of

The **Midpoint For**
point of a line segr

Drag and dr
into t

Pull for Hint

Pull for Answer

$$\left(\frac{3+5}{2},\frac{1+4}{2}\right)$$

or

$$\left(\frac{5+3}{2},\frac{4+1}{2}\right)$$

$$\text{Midpoint} = \left(\frac{3 + 5}{2}, \frac{1 + 4}{2}\right)$$

$A = (3 , 1)$ $B = (5 , 4)$

Midpoint of a Line Segment

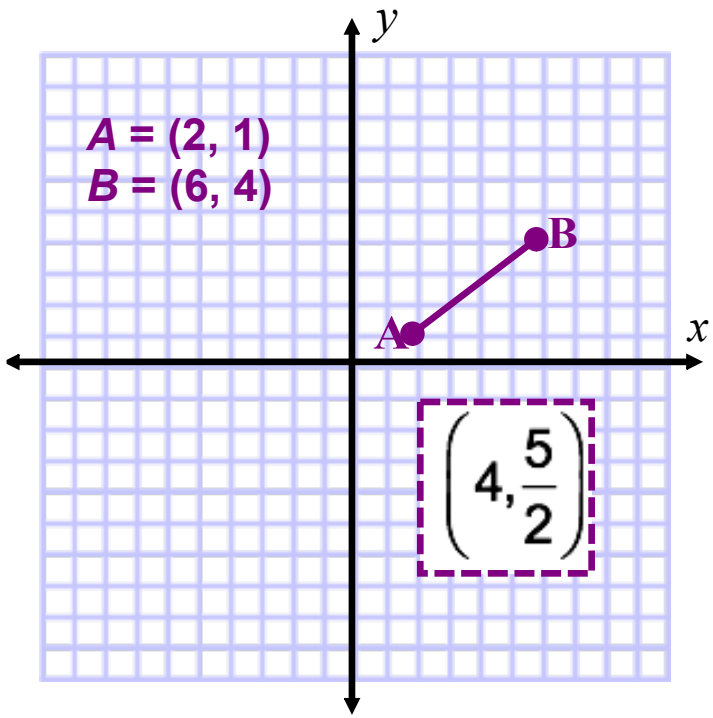
Yes!

$$m = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$$m = \left(\frac{2+6}{2}, \frac{1+4}{2} \right)$$

$$= \left(\frac{8}{2}, \frac{5}{2} \right) = \left(4, \frac{5}{2} \right)$$

Mark the midpoint of the segment on the coordinate plane.



Pull for Hint

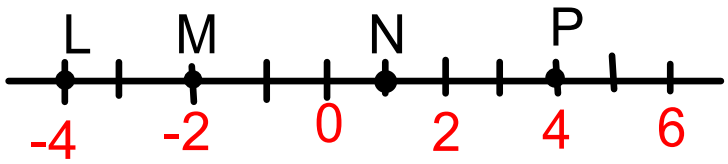
1 Use the number line to find the length of LN.

A 6

B 4

C -5

D 5



2

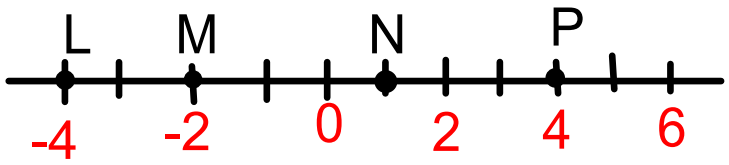
Use the number line to find the midpoint of MP.

A 1

B 4

C 3

D 5



3

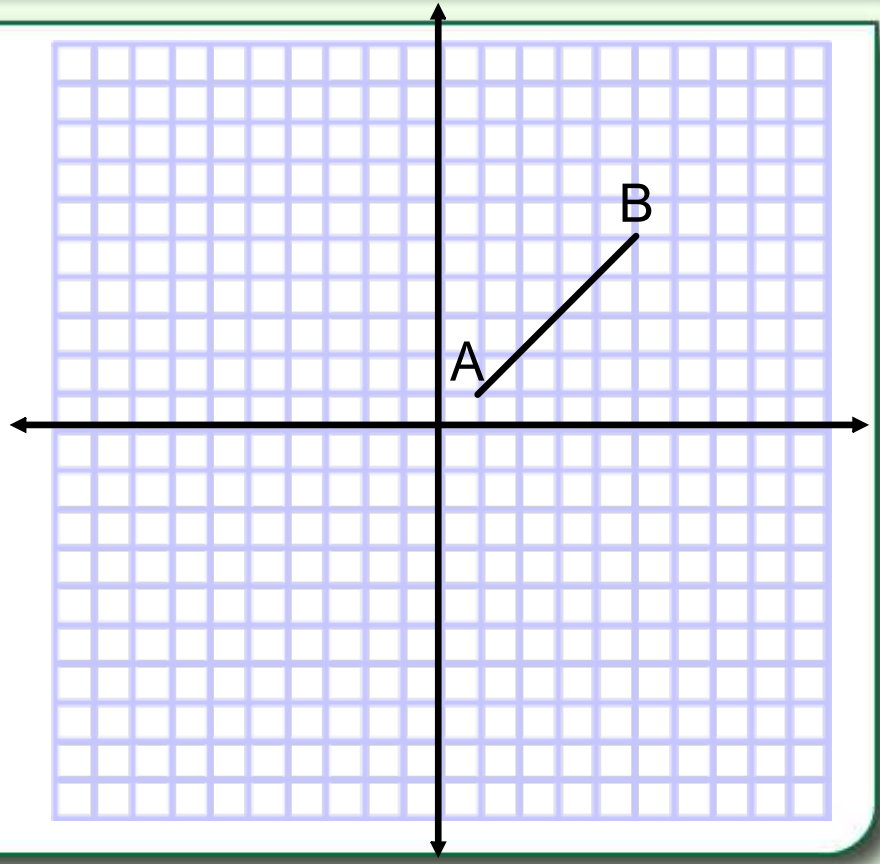
Use the distance formula to find the length of segment AB.

A $6\sqrt{2} \approx 8.49$

B $4\sqrt{2} \approx 5.66$

C $2\sqrt{2} \approx 2.83$

D $2\sqrt{3} \approx 3.47$



4

Use the distance formula to find the length of segment AB.

A(-2,4)

B(3,6)

A 10.05

B 101

C 29

D 5.39

5

Use the midpoint formula to find the midpoint of segment AB.

A $(\frac{1}{2},5)$

B $(5,\frac{1}{2})$

C (-2.5,1)

D (2.5,-1)

A(-2,4)

B(3,6)

Attachments

H.flv

scarecrow doesn't get a brain after all.flv