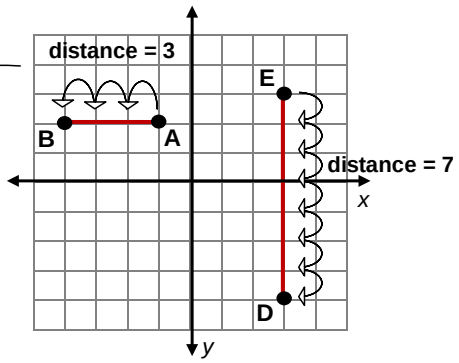
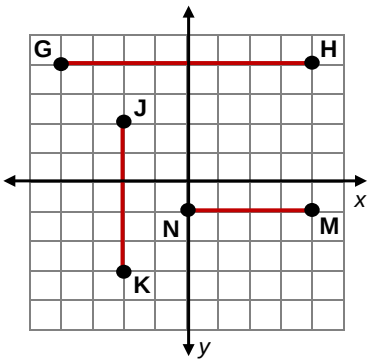
INTRODUCTION TO DISTANCE OF LINE SEGMENTS

ANSWERS

THE EASIEST WAY TO FIND THE LENGTH OF A LINE SEGMENT IS TO COUNT THE DISTANCE FROM ONE POINT TO THE OTHER.



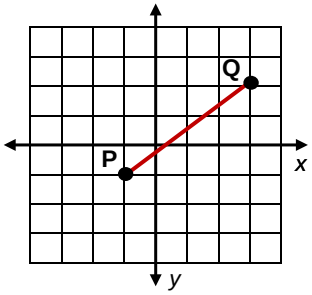
Now your turn. Find the distance for each line segment.

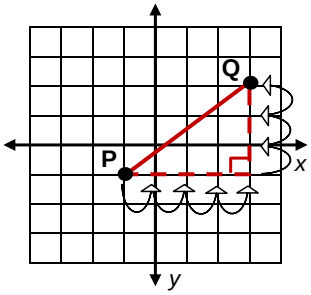


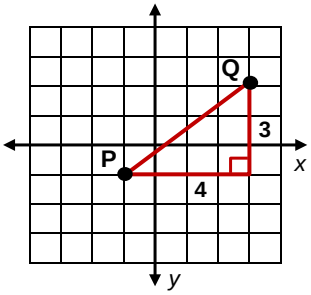
1. Distance $\overline{GH}$ **8**
2. Distance $\overline{JK}$ **5**
3. Distance $\overline{MN}$ **4**

UNFORTUNATELY, IT IS NOT ALWAYS THIS EASY. WE CAN NOT USE THIS SIMPLE COUNTING METHOD WHEN THE LINE SEGMENT IS DIAGONAL.

BUT IF YOU LOOK CLOSELY, YOU CAN SEE WE CAN CREATE A RIGHT TRIANGLE AND THEN USE THE PYTHAGOREAN THEOREM TO FIND THE LENGTH OR DISTANCE OF THE LINE SEGMENT.





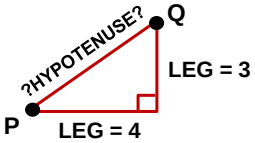


Pythagorean Theorem

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

OR

$c = \sqrt{a^2 + b^2}$



Pythagorean Theorem $\rightarrow$ $c^2 = a^2 + b^2$ $\rightarrow$ $c^2 = 4^2 + 3^2$ $\rightarrow$ $c = \sqrt{4^2 + 3^2}$

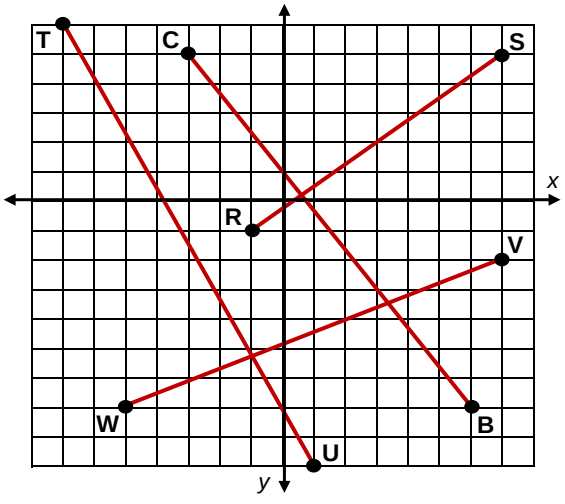
$c = \sqrt{16 + 9}$ $\rightarrow$ $c = \sqrt{25}$ $\rightarrow$ $c = 5$

c = hypotenuse
b = leg
a = leg

DISTANCE $\overline{PQ}$ = 5

DID YOU SEE HOW WE COUNTED THE DISTANCE FOR THE LEGS AND PLACED THE AMOUNTS INTO THE PYTHAGOREAN THEOREM? WE THEN SOLVED FOR "c" WHICH IS THE DISTANCE BETWEEN POINT P AND Q.

Now your turn. Find the distance for each line segment.



4. Distance $\overline{RS}$ **10**
5. Distance $\overline{TU}$ **17**
6. Distance $\overline{VW}$ **13**
7. Distance $\overline{BC}$ **15**