

Distance on the Coordinate Plane

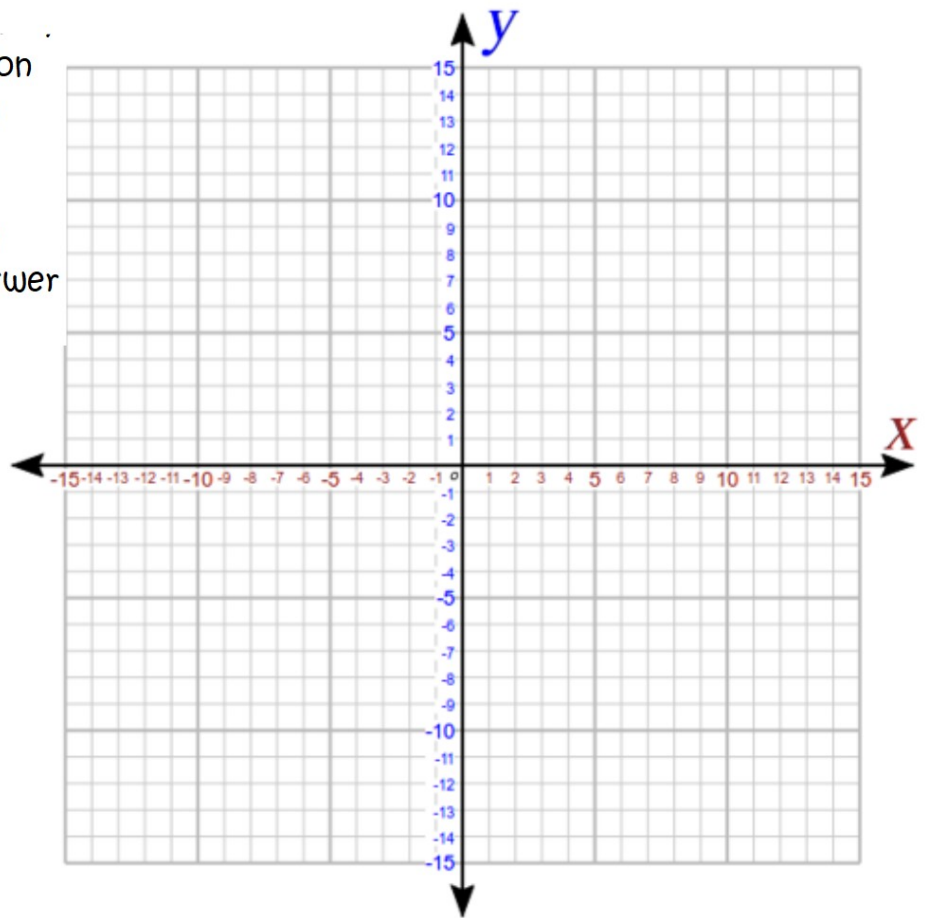
While driving through the country, you come across an intersection with two perpendicular roads. The sign at the intersection shows the distance to several towns. Draw the map/diagram of the roads, and use it to answer the following questions.

Albertsville ← 8 mi.

Blossville ↑ 3 mi.

Cheyenne ↑ 12 mi.

Dewey Falls → 6 mi.



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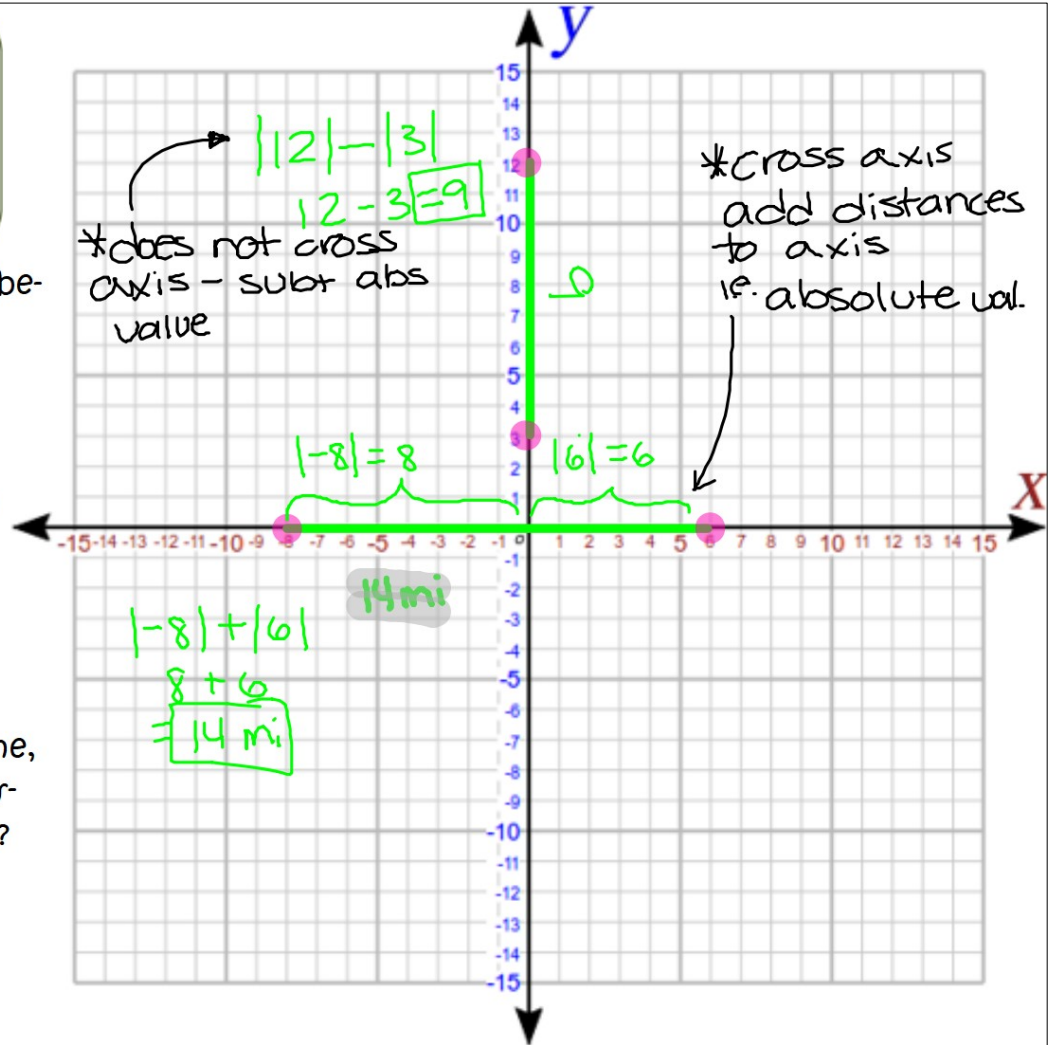
Cheyenne ↑ 12 mi.

Dewey Falls → 6 mi.

1) what is the distance between Albertsville and Dewey Falls?

2) What is the distance between Blossville and Cheyenne?

3) On the coordinate plane, what represents the intersection of the two roads?



Distance on the Coordinate Plane

1) Find the distance between points D and B.

a) what do the points have in common?
y value of -4

b) Do they lie in the same quadrant?
- if ~~yes~~, subtract their absolute values.

- if **no** add their absolute values.

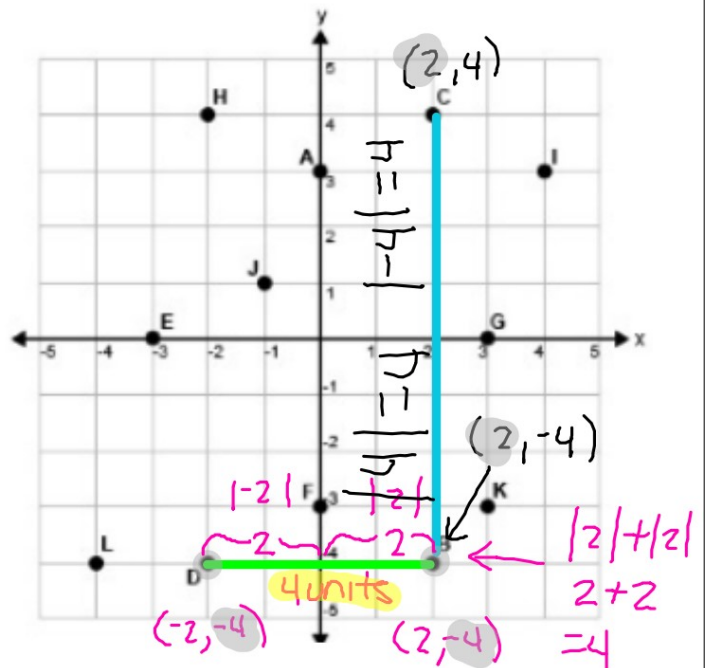
$$\begin{array}{l} |-2| + |2| \\ 2 + 2 = 4 \end{array}$$

2) find the distance between the following points.

a) B and C $|4| + |-4| = 8$ units

b) G and K

c) D and L



Distance on the Coordinate Plane

What are the challenges when the grid is taken away?

$$1) \begin{array}{l} |-7| - |0| \\ 7 - 0 \end{array} \boxed{=7}$$

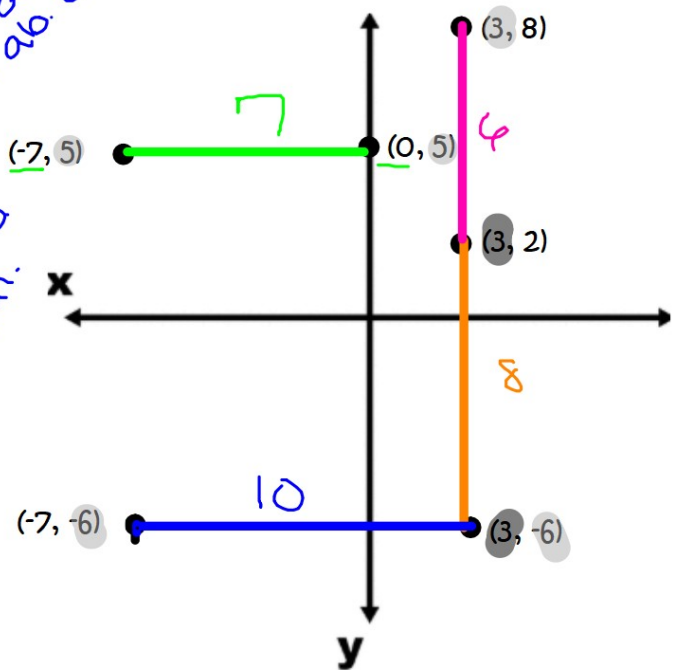
$$2) \begin{array}{l} |2| + |-6| \\ 2 + 6 \end{array} \boxed{=8}$$

$$3) \begin{array}{l} |8| - |2| \\ 8 - 2 \end{array} \boxed{=6}$$

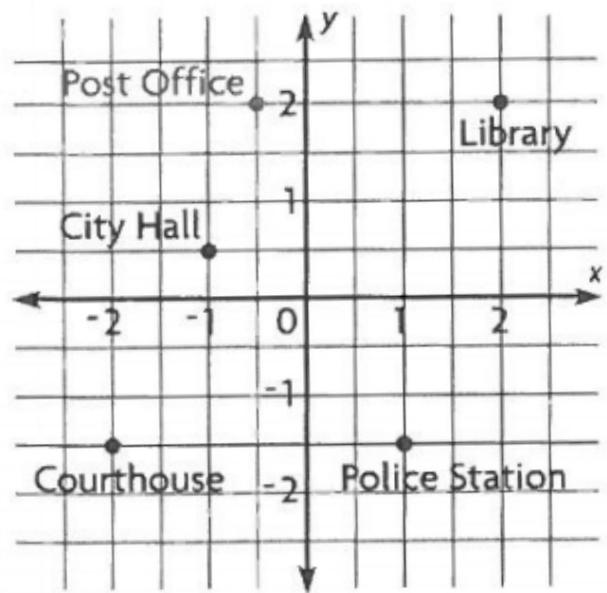
$$4) \begin{array}{l} |7| + |3| \\ 7 + 3 \end{array} \boxed{=10}$$

When line
cross axis
add abs. val.

When line
does not
cross-sub
abs. val.



Map of Elmwood



Distance on the Coordinate Plane

Find the distance between points on the axis:

1) $(-4, 0)$ and $(5, 0)$

a: what do the ordered pairs have in common? *y terms*

b: How do we find the distance of two points on the origin?
diff quadrants → so crosses axis (add ab-ua)

c: What is the distance between the two points?

$$|-4| + |5| = 4 + 5 = \boxed{9}$$

2) $(0, -6)$ and $(0, -11)$ *same - does not cross axis*

$$|-6| - |-11| \\ 6 - 11 = \boxed{5}$$

Find distance between two points not on the axis:

3) $(-3, 3)$ and $(-3, -5)$

$$|3| + |-5| \\ 3 + 5 = \boxed{8}$$

4) $(-5, 2)$ and $(-5, -4)$

$$|2| + |-4| \\ 2 + 4 = \boxed{6}$$

Distance on the Coordinate Plane

Find the length of the line segments whose endpoints are given.

a) $(-3, 4)$ and $(-3, 9)$ same sign
= sub.

$$|9| - |4|$$
$$9 - 4 = 5$$

b) $(2, -2)$ and $(-8, -2)$ diff = add

$$|2| + |-8|$$
$$2 + 8 = 10$$

c) $(-6, -6)$ and $(-6, 1)$ diff = add

$$|-6| + |1|$$
$$6 + 1 = 7$$

d) $(-9, 4)$ and $(-4, 4)$ same = sub

$$|-9| - |-4|$$
$$9 - 4 = 5$$

e) $(0, -11)$ and $(0, 8)$

diff = add

$$|-11| + |8|$$
$$11 + 8 = 19$$

Distance on the Coordinate Plane

Write the coordinates of a point that is the given distance from the given points.

f) 5 units from $(-1, -2)$
 $(?, -2)$

-6 or 4

g) 8 units from $(2, 4)$
 $(2, ?)$

-4 or 12

h) 3 units from $(-7, -5)$
 $(-7, ?)$

-8 or -2

i) 6 units from $(4, -1)$
 $(4, ?)$

-7 or 5

j) 10 units from $(-1, 9)$
 $(?, 9)$

9 or -11

k) 7 units from $(-3, 2)$
 $(?, 2)$

-10 or 4















