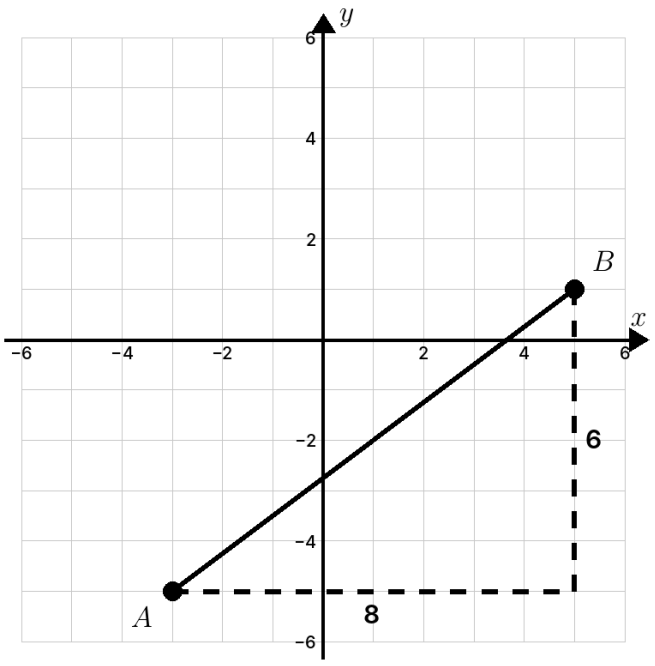
As the Crow Flies

GL03-V1 · storyboard · GL03 The distance between two points. Read each picture with its sentences.

Picture 1



Across: $5 - (-3) = 8$

Up: $1 - (-5) = 6$

$$AB^2 = 8^2 + 6^2 = 100$$

$$AB = 10$$

1. How far is it from negative 3, negative 5, to 5, 1, in a straight line?
2. Go across and up: 8 across, because 5 minus negative 3 is 8, and 6 up.
3. Pythagoras: A B squared is 8 squared plus 6 squared, which is 100.
4. So A B is 10.

Picture 2

Trap 8 across, 6 up

$$\times \; 8 + 6 = 14$$

$$\checkmark \; \sqrt{8^2 + 6^2} = 10$$

5. Watch for the trap: adding the sides.
6. 14 is the way round the corner.
7. The straight path is shorter: square, add, then the root.

Picture 3

How far is $P(1, 2)$ from $Q(5, 8)$?

$$PQ^2 = 4^2 + 6^2 = 52$$ 4 across, 6 up

$$\boxed{PQ = \sqrt{52} = \sqrt{4}\sqrt{13} = 2\sqrt{13}}$$

8. How far is the point 1, 2 from the point 5, 8?
9. 4 across and 6 up: P Q squared is 16 plus 36, which is 52.
10. 52 isn't a square number, so leave the root.
11. Take out the square factor, 4: the distance is 2 root 13.