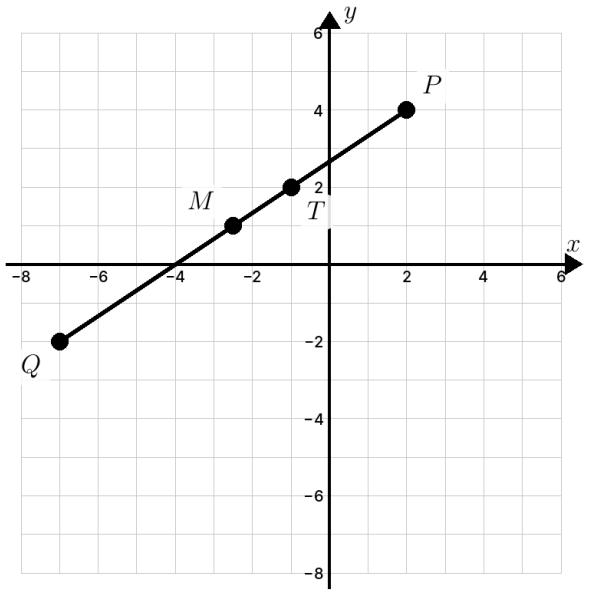
Halfway and a Third of the Way

GL07-V1 · storyboard · GL07 Midpoints and points that split a segment. Read each picture with its sentences.

Picture 1



$P(2, 4)$, $Q(-7, -2)$

$$M = \left(\frac{2+(-7)}{2}, \frac{4+(-2)}{2}\right)$$

$$M = \left(-\frac{5}{2}, 1\right)$$

$PT : TQ = 1 : 2$: $\frac{1}{3}$ of the way

$$T = (2 - 3,\ 4 - 2) = (-1, 2)$$

1. P is 2, 4 and Q is negative 7, negative 2.
2. For the midpoint M, average the x's and average the y's: M is negative 5 halves, 1.
3. Now the point T with P T to T Q equal to 1 to 2.
4. That is 3 parts, and T is after the first: a third of the way.
5. A third of negative 9 across and of negative 6 up gives T at negative 1, 2.

Picture 2

Trap $PT : TQ = 1 : 2$

$\times$ $\frac{1}{2}$ of the way

✓ $\frac{1}{3}$ of the way

6. Watch for the trap: 1 to 2 isn't half.
7. There are 3 parts, so it is a third of the way.

Picture 3

Trap midpoint of $(2, 4),\ (-7, -2)$

$\times$ $\left(\frac{-7-2}{2}, \frac{-2-4}{2}\right)$

✓ $\left(\frac{2+(-7)}{2}, \frac{4+(-2)}{2}\right)$

8. And the second trap: half the difference isn't the midpoint.
9. Add, then halve.