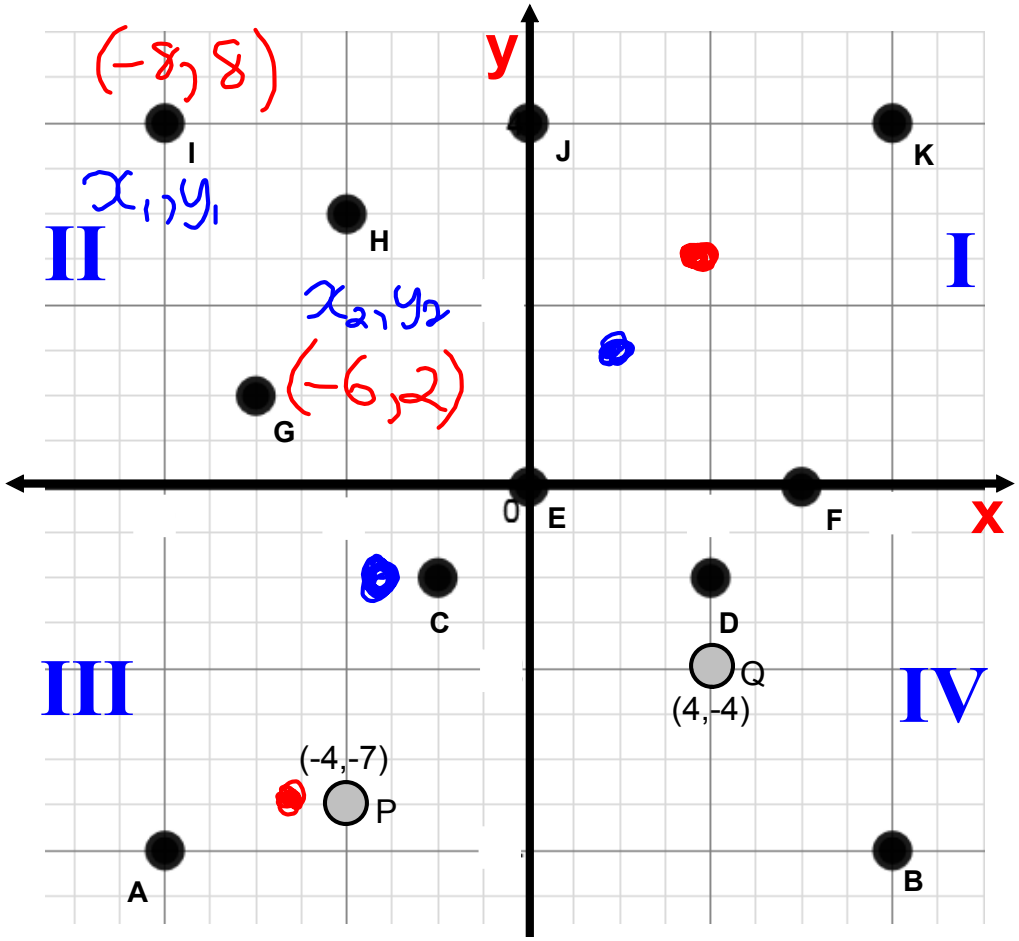
Before we continue with our motion analysis unit, we need to learn/review a math concept called slope.

Slope is a measure of how range values change with the domain values (i.e. how the y-values get larger or smaller as the x-values get larger).

Review of Plotting Points and Graphs

- Used to visualize mathematical relationships.
- 2 axes divide grid into four quadrants: I, II, III, IV
- Coordinates are written as (x,y) and called an order pair or points.
- (0,0) is called the origin.



Slope = Rise/Run

Rise = change in y - values

Run = change in x - values

$$slope = \frac{y_2 - y_1}{x_2 - x_1}$$

Example: Calculate the slope between P & Q.

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{-4 - (-7)}{4 - (-4)} = \frac{-4 + 7}{4 + 4} = \frac{3}{8}$$

Slope = 0.375

Example: Calculate the slope between D & B.

1. What points have an *y*-value of -2? C, D
2. What points have an *x*-value of 0? E, J
3. Place a dot at (2,3) and (-3,-2).
4. What points form the corners of a perfect square? A B K I
5. Going from G to H: 4 up and 2 right. $4/2 = 2$
6. Going from H to J: 2 up and 4 right. $2/4 = 0.5$
7. Going from E to D: 2 down and 4 right. $-2/4 = -0.5$
8. Going from I to C: 10 down and 6 right. $-10/6 = -1.7$
9. Calculate the slope for questions 5 - 8. (slope = rise/run)
10. Place a dot 3 units to the right and 1 unit up from point A.
11. Place a dot 5 units to the right and 3 units down from point J.
12. Calculate the slope between points: I & G, A & D, C & D, I & F, A & J, and H & B.

I - G $\frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - 8}{-6 - (-8)} = \frac{-6}{2} = \boxed{-3}$

Attachments

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