

**Math 112: #32 A/B/C/D**

A) (No Calculator) Find two sets of parametric equations describing the line segment from  $(-2, -4)$  to  $(4, 14)$ .  $\Delta x = 6$

$$m = \frac{14 - (-4)}{4 - (-2)} = \frac{18}{6} = 3$$

$$1) \begin{cases} x = -2 + 3t \\ y = -4 + 9t \end{cases} \quad 0 \leq t \leq 2$$

There are other possibilities

$$2) \begin{cases} x = -2 + 6t \\ y = -4 + 18t \end{cases} \quad 0 \leq t \leq 1$$

B) (No Calculator) Find two sets of parametric equations describing the line segment from  $(-1, -4)$  to  $(3, 12)$ .  $\Delta x = 4$

$$m = \frac{12 - (-4)}{3 - (-1)} = \frac{16}{4} = 4$$

$$1) \begin{cases} x = -1 + 2t \\ y = -4 + 8t \end{cases} \quad 0 \leq t \leq 2$$

There are more possibilities

$$2) \begin{cases} x = -1 + 4t \\ y = -4 + 16t \end{cases} \quad 0 \leq t \leq 1$$

C) (No Calculator) Find two sets of parametric equations describing the line segment from  $(-4, 6)$  to  $(6, 1)$ .  $\Delta x = 10$

$$m = \frac{1 - 6}{6 - (-4)} = \frac{-5}{10} = -\frac{1}{2}$$

$$1) \begin{cases} x = -4 + 2t \\ y = 6 - t \end{cases} \quad 0 \leq t \leq 5$$

There are more possibilities.

$$2) \begin{cases} x = -4 + 10t \\ y = 6 - 5t \end{cases} \quad 0 \leq t \leq 1$$

D) (No Calculator) Find two sets of parametric equations describing the line segment from  $(-3, 6)$  to  $(2, -4)$ .  $\Delta x = 5$

$$m = \frac{-4 - 6}{2 - (-3)} = \frac{-10}{5} = -2$$

$$1) \begin{cases} x = -3 + t \\ y = 6 - 2t \end{cases} \quad 0 \leq t \leq 5$$

There are other possibilities

$$2) \begin{cases} x = -3 + 5t \\ y = 6 - 10t \end{cases} \quad 0 \leq t \leq 1$$