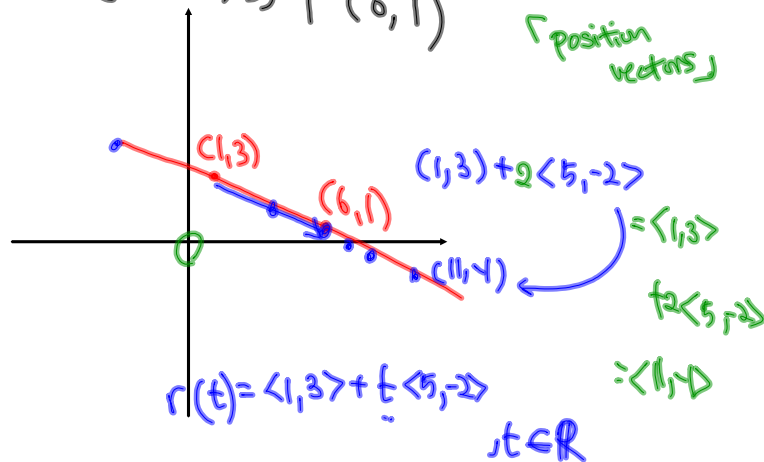


How do we find an equation of a line?

Do Now

Find an eq. of a line that passes through $(1,3)$ & $(6,1)$



eq b/w $(1, 3, 6)$ & $(-1, 5, 0)$

vector

parametric

$x = 1 - 2t$

$y = 3 + 2t$

$z = 6 - 6t$

$\langle -2, 2, -6 \rangle$

$r(t) = \langle 1, 3, 6 \rangle + t\langle -2, 2, -6 \rangle$

symmetric

$\frac{x-1}{-2} = \frac{y-3}{2} = \frac{z-6}{-6}$

Express equations of a line in 3 forms.

$$(1, 5, 1) \text{ \& } (-3, 1, 7)$$

$$\textcircled{1} \quad r(t) = \langle 1, 5, 1 \rangle + t \langle -4, -4, 6 \rangle$$

$$\textcircled{2} \quad x = 1 - 4t \quad y = 5 - 4t \quad z = 1 + 6t$$

$$\textcircled{3} \quad \frac{x-1}{-4} = \frac{y-5}{-4} = \frac{z-1}{6}$$

$$\frac{x-2}{3} = \frac{3+y}{7} = \frac{5-z}{2}$$

$$\text{a) } x = 3t + 2$$

$$y = 7t - 3$$

$$z = -2t + 5$$

$$\text{b) } r(t) = \langle 2, -3, 5 \rangle + t \langle 3, 7, -2 \rangle$$

$$r_1(t) = \langle 0, 5, -1 \rangle + t \langle 1, 2, 3 \rangle$$

$$r_2(t) = \langle 6, -2, 1 \rangle + t \langle 0, 1, -2 \rangle$$

①

$$x = t$$

$$y = 2t + 5$$

$$z = -1t + 3$$

②

$$x = 6$$

$$y = u - 2$$

$$z = -2u + 1$$