

6. $y = 4x + 3$

$$y = mx + b$$

\uparrow \uparrow
 $m = 4$ $(0, 3)$
 $y = 4x + 3$

7. $y = 2x + 13$ $(-4, 5)$ $m = 2$

$$(y - y_1) = m(x - x_1)$$

$$(y - 5) = 2(x - (-4))$$

$$y - 5 = 2(x + 4)$$

$$y - 5 = 2x + 8$$

$$y = 2x + 13$$

8. $(0, 7)$ and $(9, 3)$

$y = -\frac{4}{9}x + 7$

$(y - y_1) = m(x - x_1)$

\uparrow
use points find m

$$m = \frac{7-3}{0-9} = -\frac{4}{9}$$

use one of point, I will
use $(0, 7)$ $m = -\frac{4}{9}$

$$(y - y_1) = m(x - x_1)$$

$$y - 7 = -\frac{4}{9}(x - 0)$$

$$y - 7 = -\frac{4}{9}x$$

$$y = -\frac{4}{9}x + 7$$

9. $(-5, 8)$ and $(-1, 2/3)$

$$y = -\frac{11}{6}x - \frac{7}{6}$$

$$m = \frac{8 - 2/3}{-5 - (-1)}$$

$$m = \frac{\left[\frac{24}{3} - \frac{2}{3}\right]}{-5 + 1} = \frac{\left(\frac{22}{3}\right)}{-4}$$

$$m = \frac{22}{3} \div -\frac{4}{1}$$

$$m = \frac{22}{3} \cdot -\frac{1}{4} = -\frac{22}{12}$$

$$m = -11/6$$

use a point
and m ,
 $m = -11/6$
 $(-5, 8)$

$$(y - y_1) = m(x - x_1)$$

$$y - 8 = -\frac{11}{6}(x - (-5))$$

$$y - 8 = -\frac{11}{6}x - \frac{55}{6}$$

$$y = -\frac{11}{6}x - \frac{55}{6} + \frac{8}{1}$$

$$y = -\frac{11}{6}x - \frac{55}{6} + \frac{48}{6}$$

$$y = -\frac{11}{6}x - \frac{7}{6}$$

$$10. \quad (21, -40) \quad m = 4/5$$

$$y = \frac{4}{5}x - \frac{284}{5} \quad (y - y_1) = m(x - x_1)$$

$$y - (-40) = \frac{4}{5}(x - 21)$$

$$y + 40 = \frac{4}{5}x - \frac{84}{5}$$

$$y = \frac{4}{5}x - \frac{84}{5} - 40$$

$$y = \frac{4}{5}x - \frac{84}{5} - \frac{200}{5}$$

$$y = \frac{4}{5}x - \frac{284}{5}$$

$$11. \quad (-3/5, 7) \quad m = 1/2$$

$$y = \frac{1}{2}x + \frac{73}{10} \quad (y - y_1) = m(x - x_1)$$

$$y - 7 = \frac{1}{2}(x - (-3/5))$$

$$y - 7 = \frac{1}{2}(x + 3/5)$$

$$y - 7 = \frac{1}{2}x + \frac{3}{10}$$

$$y = \frac{1}{2}x + \frac{3}{10} + 7$$

$$y = \frac{1}{2}x + \frac{3}{10} + \frac{70}{10}$$

$$y = \frac{1}{2}x + \frac{73}{10}$$

12.

$$y = -\frac{1}{2}x + \frac{5}{2}$$

pick any two points
on the line - select
clear and easy
coordinates
(1, 2) and (5, 0)

$$m = \frac{2-0}{1-5} = \frac{2}{-4} = -\frac{1}{2}$$

$$(y - y_1) = m(x - x_1)$$

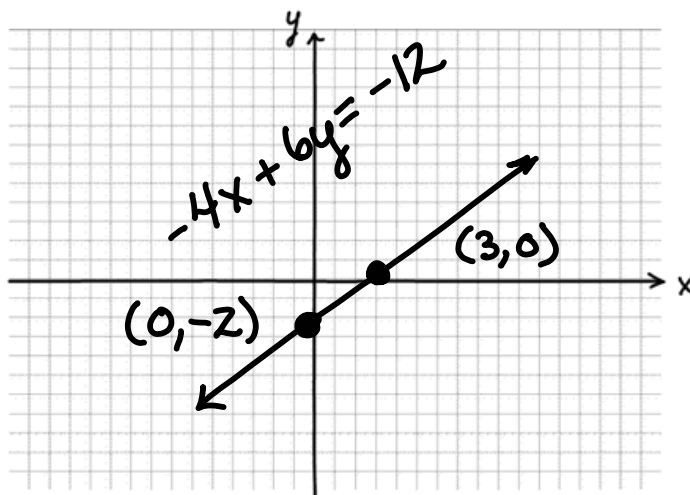
$$y - 0 = -\frac{1}{2}(x - 5)$$

$$y = -\frac{1}{2}x + \frac{5}{2}$$

13.

$$-4x + 6y = -12$$

$$\begin{array}{c} \text{x-int} \\ (3, 0) \end{array} \rightarrow \begin{array}{c|c} \text{x} & \text{y} \\ \hline 0 & -2 \\ 3 & 0 \end{array} \leftarrow \begin{array}{c} \text{y-int.} \\ (0, -2) \end{array}$$



14.


$$y = -3x - 12$$

$$y = -3x + 7$$

↑
parallel line must
have slope = -3,
 $m = -3$, $(-2, -6)$

$$\begin{aligned}(y - y_1) &= m(x - x_1) \\ y - (-6) &= -3(x - (-2)) \\ y + 6 &= -3(x + 2) \\ y + 6 &= -3x - 6 \\ y &= -3x - 12\end{aligned}$$

15.

 30,000 ft
1400 ft/min

- (a) · think of $y = mx + b$
the rate of change is
the same as slope -
so, $m = 1400$
· The plane starts at
30,000 - this is like
the y -intercept of a line
so, $b = 30,000$

linear model

$$\begin{array}{ccc} & y = 1400x + 30,000 & \\ \nearrow & & \uparrow \\ \text{feet} & & \text{min.} \end{array}$$

