

a)  $m = \frac{2}{9}$  y-intercept  $(0, 4)$

$$f(x) = \frac{2}{9}x + 4$$

b)  $m = -\frac{8}{3}$  y-intercept  $(0, -2)$

$$f(x) = -\frac{8}{3}x - 2$$

c)  $m = -5$ , y-intercept  $(0, -\frac{2}{3})$

$$f(x) = -5x - \frac{2}{3}$$

d)  $m = -2$ , passes through  $(-5, 1)$

$$f(x) = -2x + b \quad f(-5) = 1$$

$$1 = -2(-5) + b \\ 1 = 10 + b \\ b = -9$$

$$f(x) = -2x - 9$$

e)  $m = \frac{2}{3}$ , passes through  $(-4, -5)$

$$f(x) = \frac{2}{3}x + b \quad f(-4) = -5$$

$$-5 = \frac{2}{3}(-4) + b \\ -5 = -\frac{8}{3} + b \\ b = -5 + \frac{8}{3} \\ b = -\frac{7}{3}$$

$$f(x) = \frac{2}{3}x - \frac{7}{3}$$

f) passes through  $(-3, 7)$  and  $(-1, -5)$

$$m = \frac{7 - (-5)}{-3 - (-1)} = \frac{12}{-2} = -6$$

$$f(x) = -6x + b \quad f(-1) = -5$$

$$-5 = -6(-1) + b \\ -5 = 6 + b \\ b = -11$$

$$f(x) = -6x - 11$$

g)  $f(-5) = -3$   $f(5) = 1$

passes through  $(-5, -3)$  and  $(5, 1)$

$$m = \frac{-3 - 1}{-5 - 5} = \frac{-4}{-10} = \frac{2}{5}$$

$$f(x) = \frac{2}{5}x + b \quad f(5) = 1$$

$$1 = \frac{2}{5}(5) + b \\ 1 = 2 + b \\ b = -1$$

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