

Equation of a Line Worksheet

Name Key

I. Write an equation of a line for the following.

a) (1, 3) and m = 4

$$3 = 4(1) + b$$

$$0 = -1$$

$$y = 4x - 1$$

b) (0, -1) and m = -2

$$-1 = -2(0) + b$$

$$b = -1$$

$$y = -2x - 1$$

c) (2, 7) and m = 3/5

$$7 = 3/5(2) + b$$

$$7 = 6/5$$

$$5.8 = b$$

$$y = 3/5x - 5.8$$

d) (2, 3) and m = 0

$$3 = 2(0) + b$$

$$b = 3$$

$$y = 3$$

e) (-3, -1) and m = -5/8

$$-1 = -5/8(-3) + b$$

$$-1 = 15/8 + b$$

$$-23/8 = b \quad y = -5/8x - 23/8$$

f) (1, -8) and m = undefined

$$x = 1$$

g) (5, 2) and (3, 3)

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

$$3 = -1/2(3) + b$$

$$4.5 = b$$

$$y = -1/2x + 4.5$$

h) (-4, 3) and (2, 3)

$$\frac{3-3}{2-4} = \frac{0}{-2} = 0$$

$$3 = 2(0) + b$$

$$b = 3$$

$$y = 3$$

i) (3, -1) and (0, 3)

$$\frac{-1-3}{3-0} = -\frac{4}{3} \quad 3 = -4/3(0) + b$$

$$b = 3$$

$$y = -4/3x + 3$$

j) (5, 6) and (5, 4)

$$\frac{4-6}{5-5} = \frac{-2}{0}$$

$$x = 5$$

k) (5, 6) and (3, 4)

$$\frac{4-6}{3-5} = \frac{-2}{-2} = 1$$

$$4 = 3(1) + b$$

$$b = 1$$

$$y = x + 1$$

l) (6, -7) and (1, 6)

$$\frac{6+7}{1-6} = \frac{13}{-5}$$

$$6 = 13/5(1) + b$$

$$b = 17/5$$

$$y = 13/5x + 17/5$$

m) (0, 7) and (0, 8)

$$\frac{8-7}{0} \text{ und.}$$

$$x = 0$$

n) (-10, 4) and (2, -5)

$$\frac{-5-4}{2-(-10)} = \frac{-9}{12} = -\frac{3}{4}$$

$$-5 = -3/4(2) + b$$

$$b = -9/2$$

$$y = -3/4x - 9/2$$

II. Using the following information, write the specified equation of a line.

a) Write an equation of a line perpendicular to $Y = 2X + 3$ that passes through (-1, 1).

$$m = -1/2$$

$$1 = -1/2(-1) + b$$

$$1 = 1/2 + b \quad b = 1/2$$

$$y = -1/2x + 1/2$$

b) Write an equation of a line that is parallel to the line created by (2, 4) and (-4, 3) and passes through (10, -2).

$$\frac{3-4}{-4-2} = \frac{-1}{-6} = 1/6$$

$$-2 = 1/6(10) + b$$

$$-11/3 = b$$

$$y = 1/6x - 11/3$$

c) Write an equation of a line that is perpendicular to the line created by (0, 7) and (0, 8) and passes through the point (2, 5).

$$5 = 0(2) + b$$

$$b = 5$$

$$y = 5$$

$$\frac{8-7}{0-0}$$

m is undefined

m = 0 → L to

d) Write an equation of a line that is parallel to the line $Y = 2X - 4$ and passes through (-6, 5).

$$5 = 2(-6) + b$$

$$5 = -12 + b$$

$$b = 17$$

$$y = 2x + 17$$