

Key

WS PC #1 Review - Unit 3

Write the equation that represents each in slope intercept form.

1) through: (0, 2) and (2, 1)

$$+2 \left(\begin{array}{c|c} 0 & 2 \\ \hline 2 & 1 \end{array} \right) - 1 \quad 2 = -\frac{1}{2}(0) + b$$

$$m = -\frac{1}{2} \quad 2 = b$$

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

2) through: (-1, 1) and (1, 2)

$$+2 \left(\begin{array}{c|c} -1 & 1 \\ \hline 1 & 2 \end{array} \right) + 1 \quad 1 = \frac{1}{2}(-1) + b$$

$$m = \frac{1}{2} \quad 1 = -\frac{1}{2} + b$$

$$\frac{3}{2} = b \quad \text{or}$$

$$y = \frac{1}{2}x + \frac{3}{2} \quad y = \frac{1}{2}x + 1.5$$

3) through: (1, -4) and (-3, 5)

$$-4 \left(\begin{array}{c|c} 1 & -4 \\ \hline -3 & 5 \end{array} \right) + 9 \quad -4 = -\frac{9}{4}(1) + b$$

$$m = -\frac{9}{4} \quad -4 = -\frac{9}{4} + b$$

$$-\frac{7}{4} = b$$

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

4) with solutions: $f(-4) = -1$ and $f(-3) = 1$

$$+1 \left(\begin{array}{c|c} -4 & -1 \\ \hline -3 & 1 \end{array} \right) + 2 \quad -1 = 2(-4) + b$$

$$m = 2 \quad -1 = -8 + b$$

$$7 = b$$

$$m = 2 \quad f(x) = 2x + 7$$

5) with solutions: $g(1) = -5$ and $g(-3) = -3$

$$-4 \left(\begin{array}{c|c} 1 & -5 \\ \hline -3 & -3 \end{array} \right) + 2 \quad -5 = -\frac{1}{2}(1) + b$$

$$m = -\frac{1}{2} \quad -5 = -\frac{1}{2} + b$$

$$-\frac{9}{2} = b$$

$$m = -\frac{1}{2} \quad g(x) = -\frac{1}{2}x - \frac{9}{2}$$

6) through: (-3, 3) and (1, -5)

$$+4 \left(\begin{array}{c|c} -3 & 3 \\ \hline 1 & -5 \end{array} \right) - 8 \quad 3 = -2(-3) + b$$

$$m = -\frac{8}{4} \quad 3 = 6 + b$$

$$-3 = b$$

$$m = -2 \quad y = -2x - 3$$

7) through: (-2, 5), slope = $-\frac{1}{2}$

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

$$5 = 1 + b$$

$$4 = b$$

$$y = -\frac{1}{2}x + 4$$

9) through: (1, -4), parallel to $y = -2x - 5$

$$m = -2 \quad -4 = -2(1) + b$$

$$-4 = -2 + b$$

$$-2 = b$$

$$y = -2x - 2$$

10) through: (-5, -3), parallel to $y = x + 1$

$$m = 1 \quad -3 = 1(-5) + b$$

$$-3 = -5 + b$$

$$2 = b$$

$$y = x + 2$$

$$(-5, 1)$$

11) with solution: $f(-5) = 1$,
and parallel to $y = -6x + 5$

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

$$1 = 30 + b$$

$$-29 = b$$

$$f(x) = -6x - 29$$

13) through: $(5, 4)$, perp. to $y = 5x - 3$

$$\perp m = -\frac{1}{5} \quad 4 = -\frac{1}{5}(5) + b$$

$$4 = -1 + b$$

$$5 = b$$

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

15) through: $(-1, 3)$, perp. to $y = \frac{1}{5}x$

$$\perp m = -5 \quad 3 = -5(-1) + b$$

$$3 = 5 + b$$

$$-2 = b$$

$$y = -5x - 2$$

17) Determine which of the lines, if any, are parallel or perpendicular.

Line a: $6x - y = 4 \quad m = 6$

Line b: $5x + 2y = 12 \quad m = -\frac{5}{2}$

Line c: $y = \frac{1}{6}x + 7 \quad m = \frac{1}{6}$

Line d passes through $(2, 5)$ and $(8, 1) \quad m = -\frac{2}{3}$

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

a: $6x - y = 4$
 $-6x \quad -6x$
 $-y = -6x + 4$
 $-1 \quad -1 \quad -1$
 $y = 6x - 4$
 $m = 6$

b: $5x + 2y = 12$
 $-5x \quad -5x$
 $2y = -5x + 12$
 $\frac{2y}{2} = \frac{-5x}{2} + \frac{12}{2}$
 $y = -\frac{5}{2}x + 6$
 $m = -\frac{5}{2}$

d: $\begin{array}{r} 2 \\ 8 \end{array} \overline{) 11} - 4$
 $m = -\frac{4}{6} = -\frac{2}{3}$

e: $\begin{array}{r} -2 \\ 3 \end{array} \overline{) 5} + 22$
 $m = \frac{2}{5}$

12) through: $(-3, 4)$, parallel to $y = -3x - 3$

$$m = -3 \quad 4 = -3(-3) + b$$

$$4 = 9 + b$$

$$-5 = b$$

$$y = -3x - 5$$

14) with solution: $g(2) = -3$, $(2, -3)$

and perp. to $y = -\frac{2}{3}x - 5$

$$\perp m = \frac{3}{2} \quad -3 = \frac{3}{2}(2) + b$$

$$-3 = 3 + b$$

$$-6 = b$$

$$g(x) = \frac{3}{2}x - 6$$

16) through: $(-3, -2)$, perp. to $y = -\frac{3}{2}x$

$$\perp m = \frac{2}{3} \quad -2 = \frac{2}{3}(-3) + b$$

$$-2 = -2 + b$$

$$0 = b$$

$$y = \frac{2}{3}x + 0 \quad \text{or} \quad y = \frac{2}{3}x$$

18) Determine which of the lines, if any, are parallel or perpendicular.

Line a: $2x + 6y = 24 \quad m = -\frac{1}{3} \quad a \parallel b$

Line b: $-x - 3y = 12 \quad m = -\frac{1}{3} \quad c \perp d$

Line c: $y = 4x - 5 \quad m = 4$

Line d passes through $(4, 5)$ and $(8, 4) \quad m = -\frac{1}{4}$

Line e passes through $(3, -3)$ and $(7, 2) \quad m = \frac{5}{4}$

a) $2x + 6y = 24$
 $-2x \quad -2x$
 $6y = -2x + 24$
 $\frac{6y}{6} = \frac{-2x}{6} + \frac{24}{6}$
 $y = -\frac{1}{3}x + 4$
 $m = -\frac{1}{3}$

b) $-x - 3y = 12$
 $+x \quad +x$
 $-3y = x + 12$
 $\frac{-3y}{-3} = \frac{x}{-3} + \frac{12}{-3}$
 $y = -\frac{1}{3}x - 4$
 $m = -\frac{1}{3}$

d) $\begin{array}{r} 4 \\ 8 \end{array} \overline{) 5} - 1$
 $m = -\frac{1}{4}$

e) $\begin{array}{r} 3 \\ 7 \end{array} \overline{) -3} + 5$
 $m = \frac{5}{4}$