MTH-PC College Algebra Session 15 10/31

1.) Find the equation for a line parallel → same slope to $y = -\frac{3}{4}x + 7$ that goes through $(x, y) = (4, -8)$.

slope = $\frac{-3}{4} = m$

$y = mx + b$

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

$y = mx + b$

$-8 = \left(-\frac{3}{4}\right)(4) + b$

$-8 = -3 + b$

$+3 \quad +3$

$b = -5$

$y = mx + b$

$y = -\frac{3}{4}x - 5$

2.) Find the equation for a line perpendicular to $4x - 2y = 10$ that goes through $(-2, 6)$. → opposite inverse

standard form

$4x - 2y = 10$

$-4x \quad -4x$

$\frac{-2y}{-2} = \frac{-4x}{-2} + \frac{10}{-2}$

$y = 2x - 5$

slope = 2

$y = mx + b$

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

$y = mx + b$ slope-intercept form

opp/inv

2 ⇒ $-\frac{1}{2} = m$

$y = mx + b$

$6 = -\frac{1}{2}(-2) + b$

$6 = 1 + b$

$-1 \quad -1$

$5 = b$

3.) A varies directly with b and d and inversely with c.

numerator

denominator

$$A \propto \frac{bd}{c}$$

$$\boxed{A = \frac{kbd}{c}}$$

4.) X varies directly with v and p.

$X = 30$ when $v = 2$ and $p = 5$.

Find the equation.

$$X = kvp$$

$$30 = k(2)(5)$$

$$\frac{30}{10} = \frac{k(10)}{10}$$

$$k = 3$$

$$\boxed{X = 3vp}$$