Equations of lines .... Kicking it up a notch!! ☺ $ax + by + c = 0$

1. Determine the equation of a line...
    a) Parallel to 5y=10-3x and passing through (-2,7). (State your answer in slope- point form.)
    b) Perpendicular to 6x = 3y + 9 and having an x-intercept of 7. (State your answer in general form.)
    c) Passing through the points (-3,8) and (5,2). (State your answer in general form.)
    d) Having an x-intercept of 4 and a y-intercept of -2. (slope-point form please)
    e) Perpendicular to the y- axis and having a y-intercept of 3. (general form please)

2. a) The equation 4x +3y +10 = 0 is in general form, rearrange it so it is in slope-intercept form.

    b) The equation $y - 8 = \frac{3}{5}(x - 11)$ is in slope-point form, rearrange it so it is in slope-intercept form.

3.

(-4, 7)
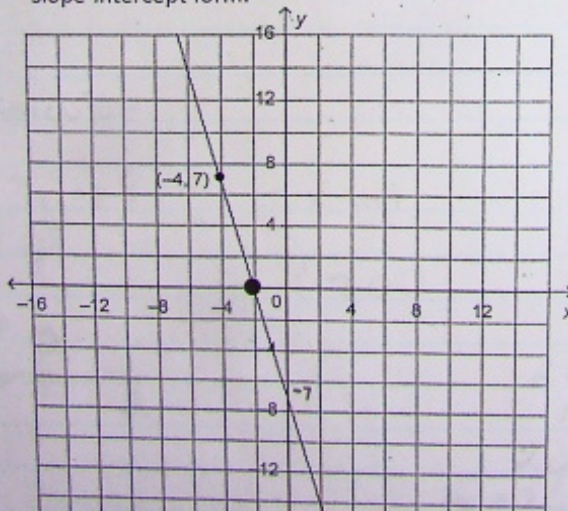
a) Determine the equation of the indicated line.

(general form please)

Hint: Keep an eye on the values of the axes.

1.

a) Parallel $(-2, 7)$ $y - y_1 = m(x - x_1)$

$$\frac{5y}{5} = \frac{10}{5} - \frac{3x}{5}$$ $y - 7 = \frac{-3}{5}(x - {}^-2)$

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

b) Perpendicular

$$6x = 3y + 9$$ x-int $y - y_1 = m(x - x_1)$

$$\frac{6x}{3} - \frac{9}{3} = \frac{3y}{3}$$ $(7, 0)$ $y^2 - 0^2 = -\frac{1}{2}^2(x - 7)$

$②x - 3 = y$

$\frac{2}{1}$ perp. $-\frac{1}{2}$ $2y = -1(x - 7)$

$$2y = -1x + 7$$
$$1x + 2y - 7 = 0$$

c) $(-3, 8) (5, 2)$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{2 - 8}{5 + 3}$$

$$= \frac{-6}{8}$$

$$= -3/4$$

$$y - y_1 = m(x - x_1) \qquad (-3, 8)$$

$$y - 8 = \frac{-3}{4}(x + 3)$$

$$4y - 32 = -3(x + 3)$$

$$4y - 32 = -3x - 9$$

$$3x + 4y - 23 = 0$$

$(-3, 8)$

c) OR

$$y - 2 = -\frac{3}{4}(x - 5)$$

$$4y - 8 = -3(x - 5)$$

$$4y - 8 = -3x + 15$$

$$3x + 4y - 23 = 0$$

d)   x-int = 4   y-int = 3

(4, 0)   (0, 3)

y $= -2$)

m = y - 4

d) x-int = 4   y-int = 3 $y - y_1 = m(x - x_1)$

(4, 0)   (0, 3)

(y = -2) $y - 0 = \dfrac{3}{-4}(x - 4)$

$m = \dfrac{y_2 - y_1}{x_2 - x_1}$

$= \dfrac{3 - 0}{0 - 4}$ OR

$= \dfrac{3}{-4}$ $= \dfrac{-2}{-4}$ $y - y_1 = m(x - x_1)$

$= \dfrac{1}{2}$ $y - 3 = \dfrac{3}{-4}(x - 0)$

e) Perp. to y-axis   y-int = 3

y $\dfrac{0}{1.}$ (0, 3) $y - y_1 = m(x - x_1)$

x $y - 3 = 0(x - 0)$

$y - 3 = 0$

2a)　　$4x + 3y + 10 = 0$

$$\frac{3y}{3} = \frac{-4x}{3} - \frac{10}{3}$$

$$y = -\frac{4}{3}x - \frac{10}{3}$$

b)　$y - 8 = \frac{3}{5}(x - 11)$

$5y - 40 = 3(x - 11)$

$5y - 40 = 3x - 33 \quad +40$

$$\frac{5y}{5} = \frac{3x}{5} + \frac{7}{5}$$

$$y = \frac{3}{5}x + \frac{7}{5}$$

$$y = \frac{3}{5}x + \frac{7}{5}$$

3. slope = $\frac{7}{-2}$

y-int = -7

$$y = mx + b$$

$$y = \frac{-7}{2}x - 7$$

$$\frac{2y}{2} = \frac{-7x}{2} - \frac{14}{2}$$

$$y = \frac{-7}{2}x - 7$$

$$2y = -7x - 14$$

$$7x + 2y + 14 = 0$$