

HOMEWORK - Quiz 3

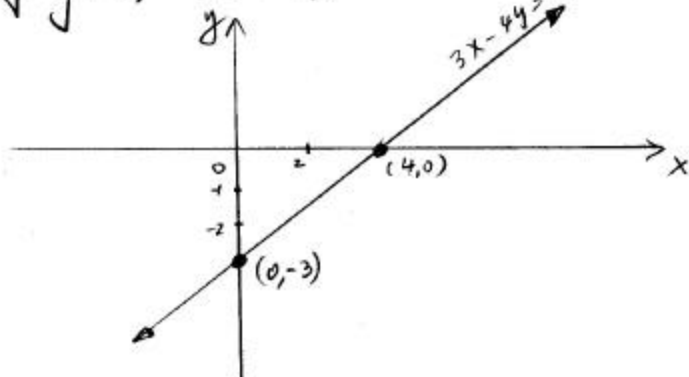
Graph each line using the intercepts.

① (a) $3x - 4y = 12$

$$\begin{array}{r|l} x & y \\ \hline 0 & -3 \\ 4 & 0 \end{array}$$

if $x=0$, $-4y=12$, $y=-3$

if $y=0$, $3x=12$, $x=4$

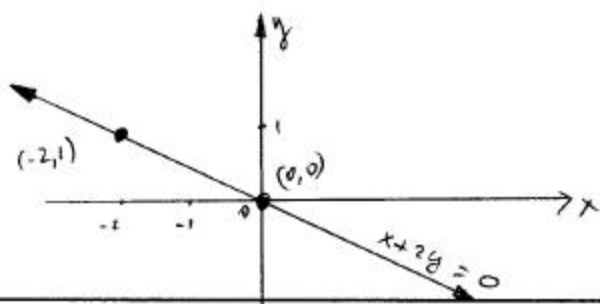


(b) $x + 2y = 0 \Rightarrow x = -2y$

$$\begin{array}{r|l} x & y \\ \hline 0 & 0 \\ -2 & 1 \end{array}$$

if $x=0$, $y=0$

if $y=1$, $x=-2$



Find the slope of each line:

② (a) $y = -\frac{2}{5}x + 7$

This equation is written in slope-intercept form

$y = mx + b$, so $m = -\frac{2}{5}$

(b) $\frac{1}{2}x + \frac{4}{5}y = -3$

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

$$y = -\frac{1}{2} \cdot \frac{5}{4}x - \frac{3}{1} \cdot \frac{5}{4}$$

$$y = -\frac{5}{8}x - \frac{15}{4} \Rightarrow m = -\frac{5}{8}$$

Write an equation for the line with the given slope, passing through the given point

③ (a) $(4, 1)$, $m = 2$

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

$$y - 1 = 2(x - 4) \quad \text{slope-point form}$$

OR

$$y - 1 = 2x - 8 \Rightarrow y = 2x - 7 \quad \text{slope-intercept form}$$

(b) $(0, 2)$, $m = -3$

$$y = mx + b$$

$$y = -3x + 2 \quad \text{slope-intercept form}$$

Write an equation for the line passing through the given points.

④ $(1, -3)$ and $(-2, 6)$

$$m = \frac{\Delta y}{\Delta x} = \frac{6 - (-3)}{-2 - 1} = \frac{6 + 3}{-3} = -3$$

$$m = -3$$

Use $m = -3$ and $(-2, 6)$

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

$$y - 6 = -3(x - (-2))$$

$$y - 6 = -3(x + 2) \quad \text{slope-point form}$$

Simplify and write the answers using only positive exponents.

$$(5) \quad (a) \quad 4^{-1} + (-2)^{-3} = \frac{1}{4} + \frac{1}{(-2)^3}$$

$$1 = \frac{1}{4} + \frac{1}{-8}$$

$$- = \frac{1}{4} - \frac{1}{8}$$

$$= \frac{2}{8} - \frac{1}{8}$$

$$= \boxed{\frac{1}{8}}$$

$$(b) \quad \left(\frac{xy^{-2}}{x^2y^{-1}} \right)^{-3} = \left(x^{1-2} y^{-2-(-1)} \right)^{-3}$$

$$= \left(x^{-1} y^{-1} \right)^{-3}$$

$$= (x^{-1})^{-3} (y^{-1})^{-3}$$

$$= \boxed{x^3 y^3}$$

$$(c) \quad (2a^4b^2)^2 (-3a^2b^3)^{-3} = 2^2(a^4)^2(b^2)^2(-3)^{-3}(a^2)^{-3}(b^3)^{-3}$$

$$= 4a^8b^4 \cdot \frac{1}{(-3)^3} a^{-6} b^{-9}$$

$$= \frac{4}{-27} a^{8-6} b^{4-9}$$

$$= -\frac{4}{27} a^2 b^{-5}$$

$$= \boxed{-\frac{4a^2}{27b^5}}$$