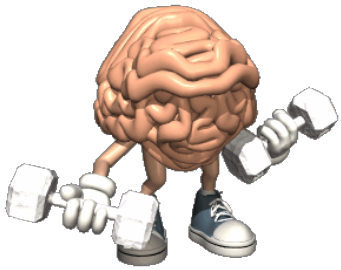
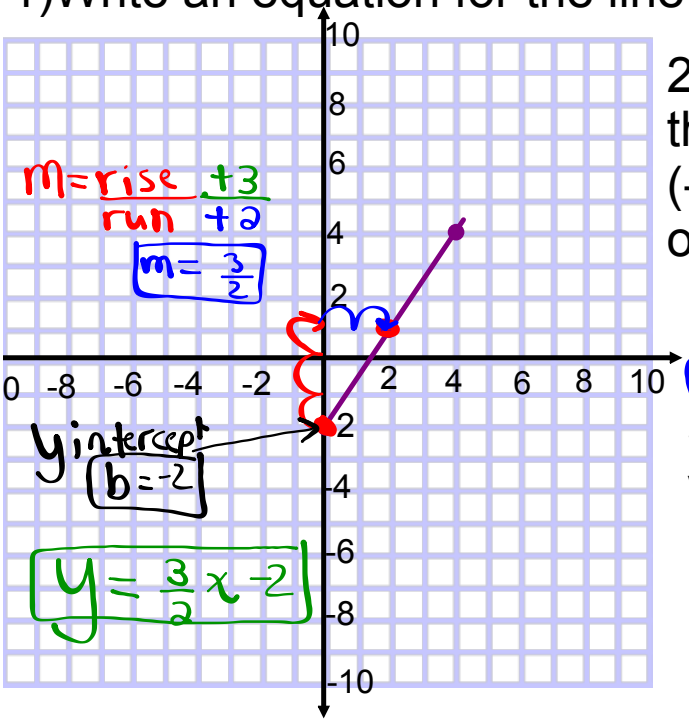
Warm Up

$y = mx + b$ (m: slope, b: y intercept)



1)Write an equation for the line :



2)Write an equation of a line that passes through (-7, 4) and (-5, 10) and has a y intercept of -5.

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{10 - 4}{-5 - -7} = \frac{6}{2} = 3$

b = -5, m = 3

$y = 3x - 5$

3) Given the equations $y = \frac{2}{5}x + 6$, state the

$y = mx + b$

i) Slope $m = \frac{2}{5}$

ii) y-intercept $b = +6$

iii) x- intercept

↓ let y = 0 (Sub into equation)

$y = \frac{2}{5}x + 6$

$0 = \frac{2}{5}x + 6$

Solve for "x"

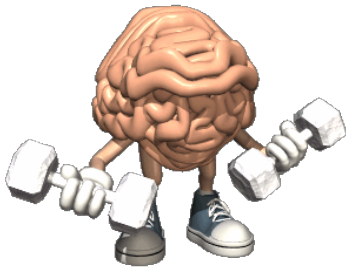
$0 - 6 = \frac{2}{5}x + 6 - 6$

$(5)\cdot(-6) = \frac{2}{5}x\,(5)$

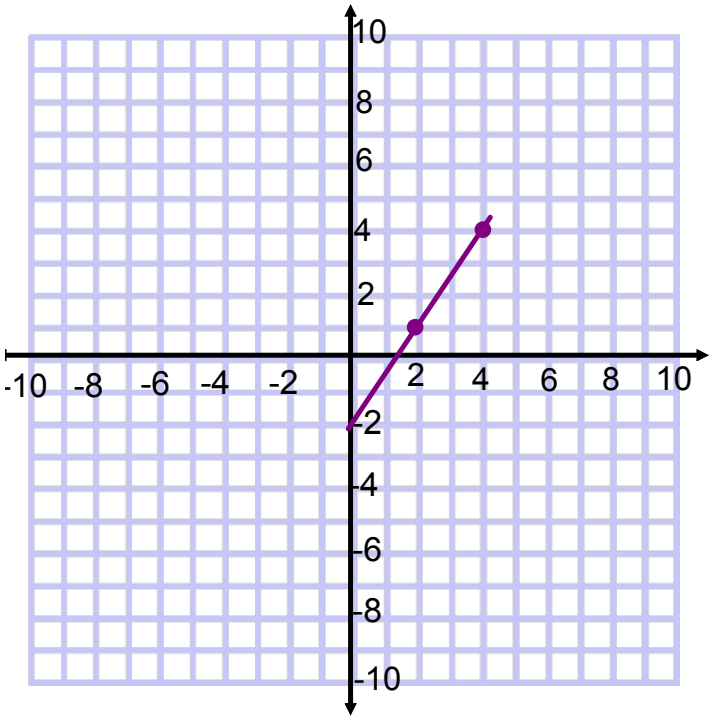
$\frac{-30}{2} = \frac{2x}{2}$

$-15 = x$

Warm Up

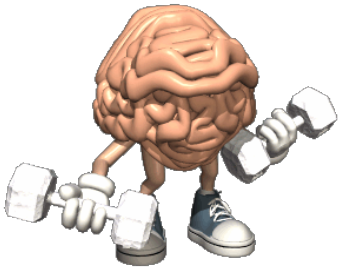


1)Write an equation for the line :



2)Write an equation of a line that passes through (-7, 4) and (-5, 10) and has a y intercept of -5.

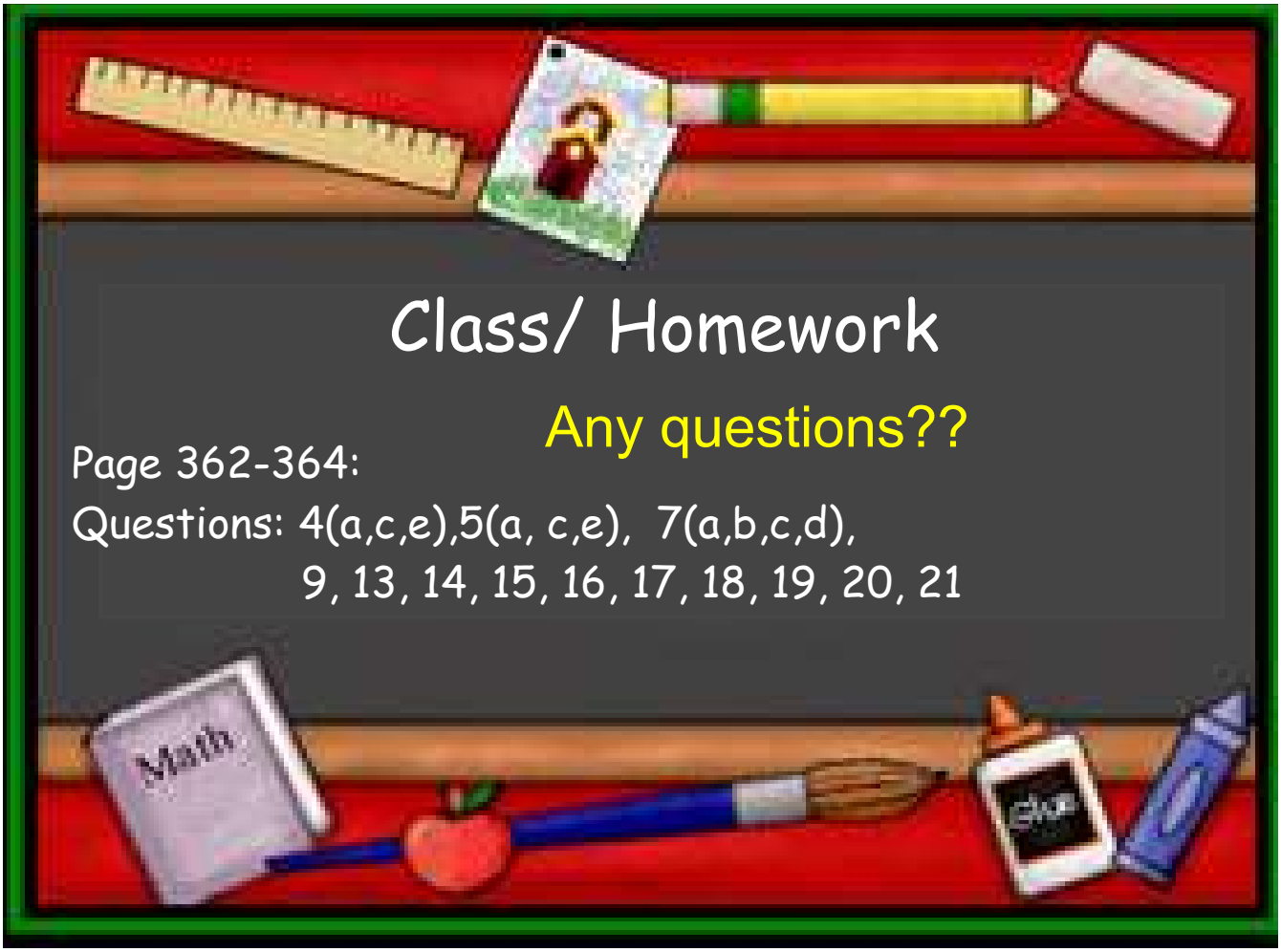
Warm Up



2)Write an equation of a line that passes through (-7, 4) and (-5, 10) and has a y intercept of -5.

3) Given the equations
$y = \frac{2}{5}x + 6$, state the i) Slope
ii) y-intercept
iii) x- intercept

(-15, 0)


Class/ Homework
Any questions??
Page 362-364:
Questions: 4(a,c,e),5(a, c,e), 7(a,b,c,d),
9, 13, 14, 15, 16, 17, 18, 19, 20, 21
Math

Can you rearrange this to slope intercept form?

$y = mx + b$

a) $2y = -3x - 10$

$\frac{2y}{2} = \frac{-3x}{2} - \frac{10}{2}$

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

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

b) $3y + 4 = 2x + 5$

$3y + 4 - 4 = 2x + 5 - 4$

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

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

$m = \frac{2}{3}$ $b = \frac{1}{3}$

$$y = mx + b$$

You need a

Slope (m)

y-intercept (b)

Point - Slope Form

You can also find the equation of a line if you are given a point and the slope of the line. In order to do this you use the formula:

You need a
-Point & a Slope
(x_1, y_1) m

slope

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

The x and y values from the given point

This equation can be rearranged to $y=mx+b$ (slope intercept)

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

Slope point form is a rearrangement of

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

$$\frac{m}{1} = \frac{(y - y_1)}{(x - x_1)}$$

$$(x - x_1)\cdot\frac{m}{1} = \frac{(y - y_1)}{(x - x_1)}\cdot(x - x_1)$$

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

Example 1:
Find the equation of a line that passes through (-3,4) and has the same slope as y = 3x + 2.

x_1 y_1

Write what you know:

x_1 y_1

$m = 3$ $(-3,4)$

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

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

add opp

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

first get to **Point Slope Form**

multiply the 3 through the bracket

$y - 4 = 3x + 9$

then continue to rearrange to get to

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

$y = 3x + 13$ **Slope Intercept Form**

Find the equation of the line in if it has a slope of -3 and it goes through the point (1,7)

$m = -3$

x_1, y_1

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

$$y - 7 = -3(x - 1)$$

$$y - 7 = -3x + 3$$

$$y - 7 + 7 = -3x + 3 + 7$$

$$y = -3x + 10$$

Leave in point slope form

Given $y - 3 = \frac{-2}{5}(x+4)$ determine the slope and a point on the line

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

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

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

(x_1, y_1)

$(-4, 3)$

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

4a) $y - 5 = -4(x - 1)$

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

$m = -4$

$(x_1, y_1) = (1, 5)$

Homework

page 372-375

4(a,d), 5(a,[illegible]), 9(a,b)(i,[illegible]),11(a,[illegible]),[illegible], 20(a)

9a) point $(-2, 4)$

Slope $m = \frac{\text{rise}}{\text{run}} = \frac{-4}{3}$

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

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

add opp

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

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

common denominators

$y = -\frac{4}{3}x - \frac{8}{3} + \frac{12}{3}$

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

Attachments

Point slope form.docx