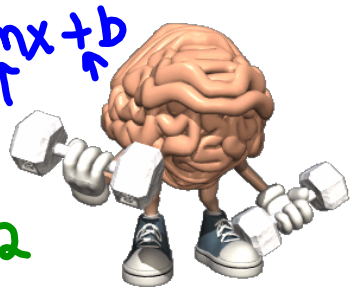
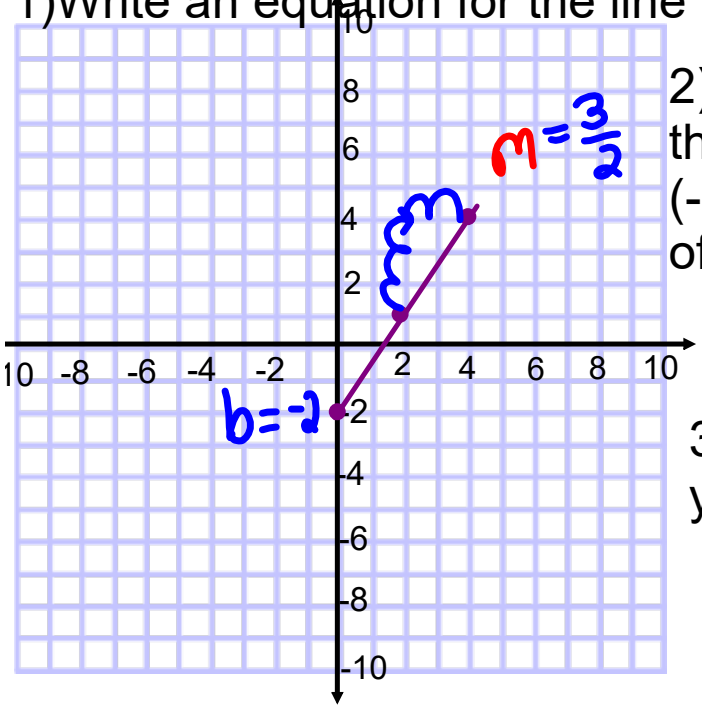
Quiz First then

Warm Up

$y = mx + b$



1)Write an equation for the line : $y = \frac{3}{2}x - 2$



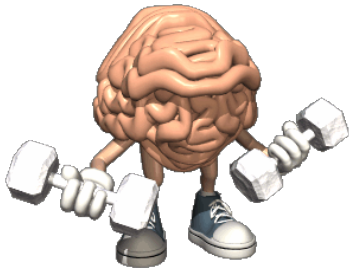
2)Write an equation of a line that passes through (-7, 4) and (-5, 10) and has a y intercept of -5.

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

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

i) Slope
ii) y-intercept
iii) x- intercept

Warm Up



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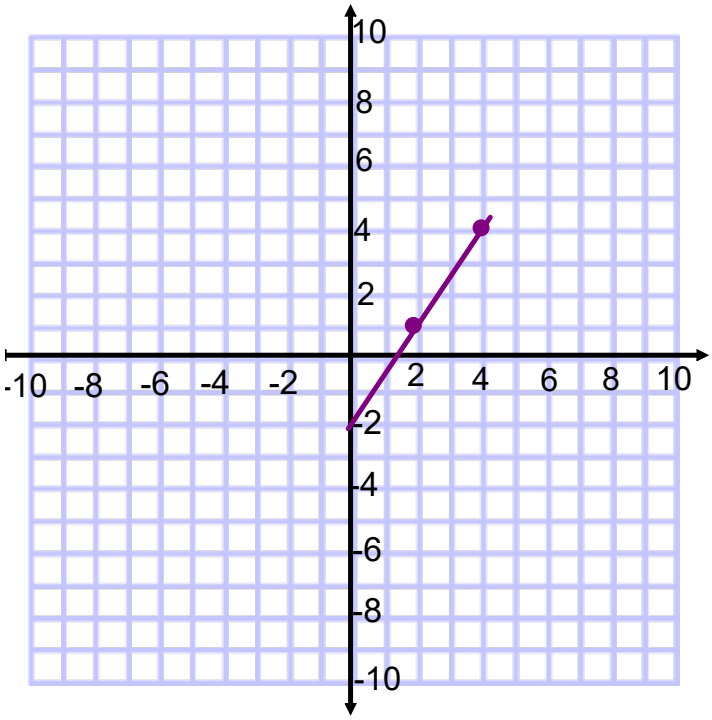

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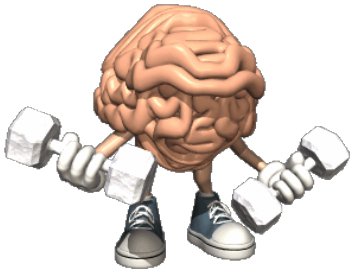
Warm Up



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

(x_1, y_1) (x_2, y_2)

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

$$= \frac{(10) - (4)}{(-5) - (-7)}$$

watch signs

$$= \frac{10 - 4}{-5 + 7}$$

$$= \frac{6}{2}$$

$$m = 3$$

$b = -5$

$y = mx + b$

$y = 3x - 5$

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

$y = mx + b$

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

ii) y intercept
$b = 6$

iii) x-intercept let $y = 0$

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

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

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

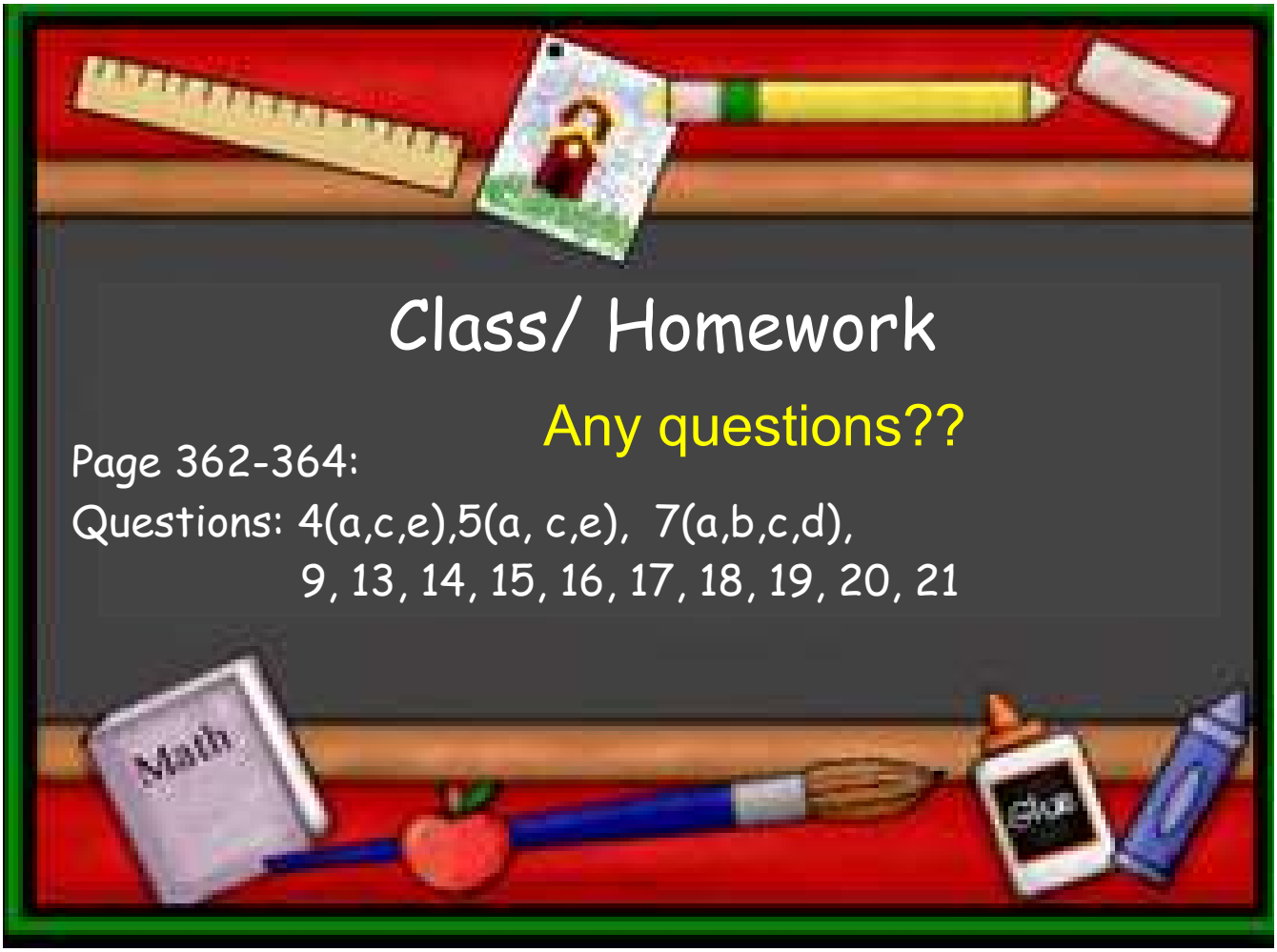
$-30 = 2x$

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

$-15 = x$

$(-15, 0)$

$(-15, 0)$


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
Glue

$y = mx + b$

Can you rearrange this to slope intercept form?

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

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

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

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

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

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

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

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

$3y = 2x + 1$

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

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

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

$$y = mx + b$$

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:

Given 'm'
(x_1, y_1)

You need a
-Point & a Slope

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

$m = 3$

Write what you know:

x_1, y_1

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

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

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

watch signs

$y - 4 = -3(x + 3)$ first get to **Point Slope Form**

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

$y - 4 = 3x + 9$

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

$y = 3x + 13$ then continue to rearrange to get to **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)

x_1 y_1 m

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

ave in point slope form $y - 7 = -3(x - 1)$ Point-slope form

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

$\boxed{y = -3x + 10}$ y-intercept form

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

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

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

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

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

Hint think of point as opposit signs in gin equation

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

Homework

page 372-375

4(a,d), 5(a,c), 9(a,b)(i, ii),11(a,b),14, 20(a)

Quiz tomorrow
- → know definition of slope of
  - → Horizontal
  - → Vertical line
  - → parallel
  - → perpendicular

→ Given two points so find slope first

→ then use m and any 1 point give to use in $y - y_1 = m(x - x_1)$

→ Write an equation for a given word problem (for each, per, for every means goes w/ x) $y = mx + b$

→ Given a slope what is the slope parallel or perpendicular to it

→ given 2 points calculate slope

→ given x-intercept of -7 (-7, 0) Remember (0, 10)
y-intercept of (10) what is the slope of line

→ Remember these are points

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

Attachments

Point slope form.docx