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

Advanced Algebra 2 Name KEY

Chapter 2 Test Review Worksheet

use this along with your quiz to review!

Tell whether each set of coordinates does or does not represent a **function**. **Explain**.

1) (-3, 1) (4, 2) (5, -3) (7, 2) (8, 5)

yes
every input has one output

2) (-3, 4) (-2, 1) (0, 3) (0, 5) (3, 4)

no
0 → 3, 5
sick fish

3) **Find the slope** of the line through $\left(\frac{1}{3}, \frac{-3}{4}\right)$ *and* $\left(\frac{4}{3}, \frac{1}{8}\right)$. Give answer as a simplified fraction.

$\frac{-3/4 - 1/8}{1/3 - 4/3} = \frac{-6/8 - 1/8}{-3/3} = \frac{-7/8}{-1} = \frac{7}{8}$

Find the x- and y-intercepts for each equation.

4) 3x - 4y = 15

x	y
0	-3.75
5	0

x = 5
y = -3.75

5) 5y + 6x = 22

x	y
0	4.4
3.6	0

$x = 3.\overline{6} = \frac{11}{3}$
$y = 4.4 = \frac{22}{5}$

Write the equation of the line through each pair of points.

6) (-5, 2) and (1, 5)

$\frac{2-5}{-5-1} = \frac{-3}{-6} = \frac{1}{2}$

$5 = \frac{1}{2} \cdot 1 + b$
$5 = .5 + b$
$b = 4.5$

$y = \frac{1}{2}x + 4.5$

7) (3, -4) and (1, 0)

$m = \frac{-4-0}{3-1} = \frac{-4}{2} = -2$

$0 = -2 \cdot 1 + b$
$0 = -2 + b$
$b = 2$

$y = -2x + 2$

8) Write the equation of a line **parallel** to y = 3x - 5 through (2, -4).

$m = 3$
$b = -10$

$-4 = 3(2) + b$
$b = -10$

$y = 3x - 10$

9) Write the equation of a line **perpendicular** to $y = -\frac{3}{2}x + 1$ through (-6, 2).

$m = 2/3$

$2 = 2/3 \cdot -6 + b$
$2 = -4 + b$ $b = 6$

$y = 2/3x + 6$

Tell whether or not each equation represents a **direct variation.** $y = ax$

10) y = 3x + 2

no

11) xy = 8

$y = \frac{8}{x}$

no

12) $\frac{y}{x} = 15$

$y = 15x$

yes

Given that x and y vary directly, **write a direct variation equation** for each pair of values.

13) x = 4 and y = -12

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

14) x = 7 and y = 10

$\frac{10}{7}$ $y = \frac{10}{7}x$

15) The table shows the length of a tooth and the body length for each of six great white sharks. Tell whether tooth length and body length show a direct variation. If so, write an equation that relates the quantities.

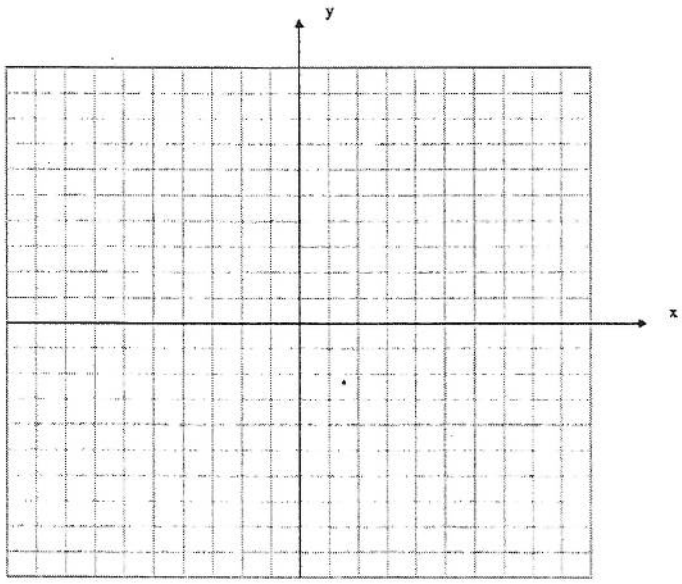
Tooth length, t (cm)	1.8	2.4	2.9	3.6	4.7	5.8
Body length, b (cm)	215	290	350	430	565	695
	$119.\overline{4}$	$120.8\overline{3}$	120.69	$119.\overline{4}$	120.21	119.83

$y = 120x$

The table below compares the test grades (in percentages) and study times (in minutes) of 8 history students. Use this table to answer #15-17.

Study Time	10	15	20	30	30	45	45	60
Test Grade	58	75	60	77	85	95	87	92

16) Make a scatterplot of the data.



17) What correlation does your graph show? (word, ~~not~~ and number!) positive $r = .86$

what does r = on calc.?

18) Write an equation for the fitted line through the data points.

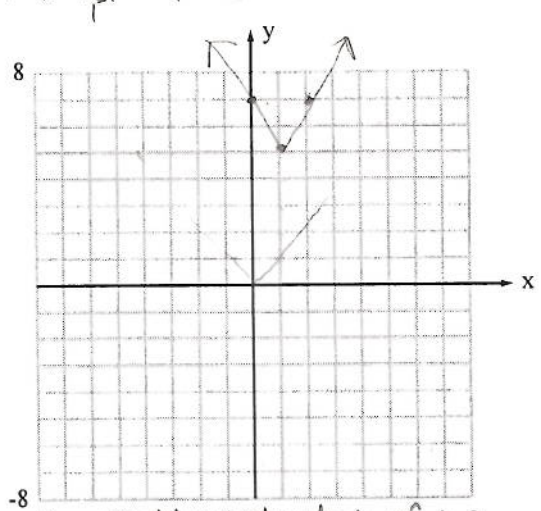
use calculator

$y = .7x + 56.42$

reminder this is called correlation coefficient

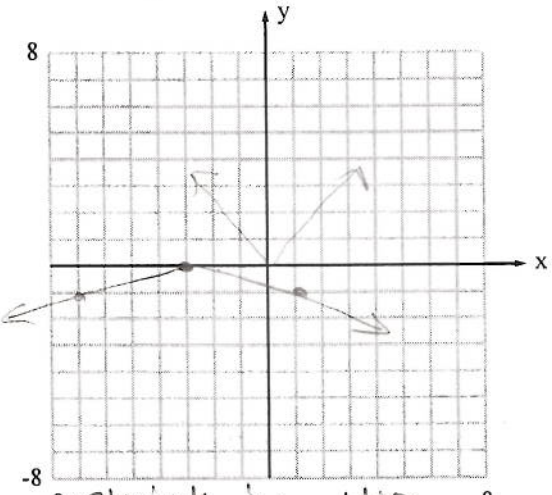
Graph each absolute value equation. Label your vertex and slope. Compare in words to $y=|x|$

19) $y=2|x-1|+5$



• vertical stretch of 2
• shift right 1 up 5

20) $y=-\frac{1}{4}|x+3|$



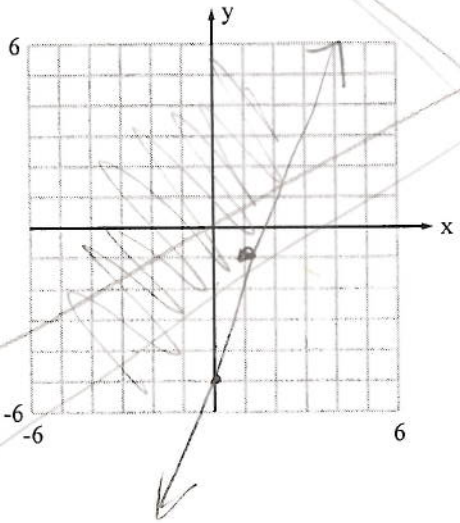
• shrink ¼, flip
• shift left 3

Graph each inequality. Be careful with your lines. Remember to shade your solution region.

21) $y \geq 4x - 5$ NOT ON TEST

$0 \geq 0-5$

$0 \geq -5$



22) $-3x+2y<9$

$0 < 9$

x	y
0	4.5
-3	0