$$\frac{48}{48} = 100$$

Name: _____Key_____   Date: _____July 14, 2015_____

Graph the linear equation by finding and plotting its **intercepts**.

1) $-2x - y = -6$

x-int: $-2x - 0 = -6$

$x = 3$

$(3, 0)$

y-int: $-2(0) - y = -6$
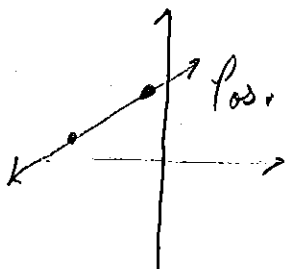
$y = 6$

$(0, 6)$

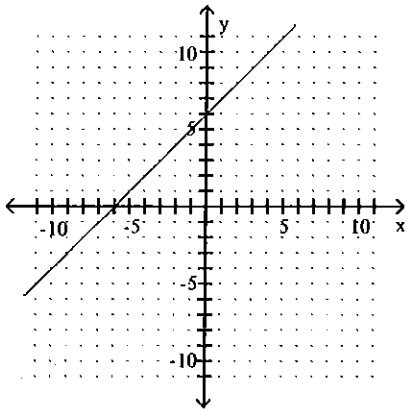Find the slope of the line that passes through the given points.

2) $(-8, 2)$ and $(-3, 4)$

$$m = \frac{(4)-(2)}{(-3)-(-8)} = \boxed{\frac{2}{5}}$$

Pos.

1

Find the slope of the line if it exists. Show your calculations.

3)

$(0, 6)$ & $(-6, 0)$

$$m = \frac{(0) - (5)}{(-6) - (0)} = \frac{-6}{-6} = \frac{6}{6}$$

$$= \boxed{1}$$

Find the slope of the line.
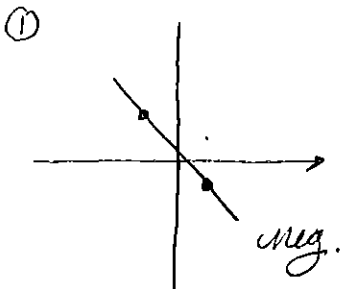
4) $8x - 3y = 24$

$$-3y = -8x + 24$$

$$y = \boxed{\frac{8}{3}}x - 8$$

$$\boxed{m = \frac{8}{3}}$$

Find an equation of the line through the pair of points. Write the equation in the form $Ax + By = C$.

5) $\left(\frac{1}{2}, -\frac{1}{4}\right)$ and $\left(-\frac{5}{3}, \frac{4}{3}\right)$

①

meg.

② $m = \dfrac{\left(\frac{4}{3}\right) - \left(-\frac{1}{4}\right)}{\left(-\frac{5}{3}\right) - \left(\frac{1}{2}\right)} = \dfrac{\frac{16 + 3}{12}}{\frac{-10 - 3}{6}}$

$= \dfrac{\frac{19}{12}}{-\frac{13}{6}} = \frac{19}{12} \cdot -\frac{6}{13} = -\frac{19}{26}$

③ $-\frac{1}{4} = \left[-\frac{19}{26} \cdot \frac{1}{2}\right] + b$

$-\frac{1}{4} = -\frac{19}{52} + b$

$-\frac{1}{4} + \frac{19}{52} = b$

$\dfrac{-13 + 19}{52} = b$

$\dfrac{6}{52} = b$

$\dfrac{3}{26} = b$

$26\left(y = -\frac{19}{26}x + \frac{3}{26}\right)$
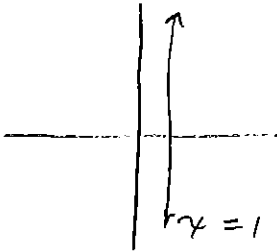
$26y = -19x + 3$

$\boxed{19x + 26y = 3}$

Determine whether the relation is also a function. Show how you arrived at your result.

6) {(-4, -8), (-2, -2), (-1, -6), (7, -8)}

Domain: { -4, -2, -1, 7 } No Repeats

yes a function

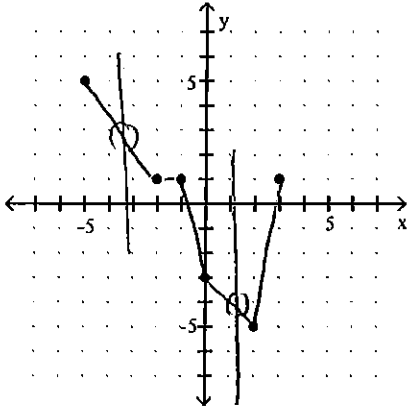**Decide whether the equation describes a function. Show how you arrived at your result.**

7) x = 1

No, fails Vertical Line Test

x = 1

Determine whether the graph is the graph of a function.
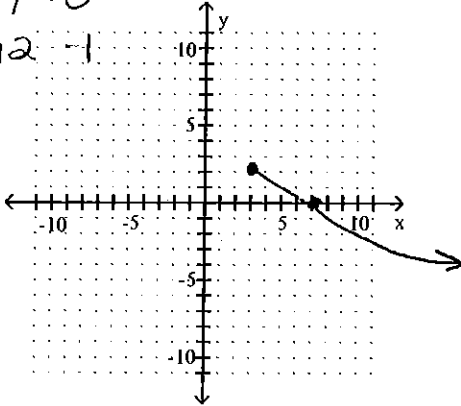
8)

yes, passes

Vertical Line Test

Identify the domain and then graph the function.

9) $f(x) = -\sqrt{x-3} + 2$; use the following table to determine a few valid points on the curve.

x	f(x)
3	2
4	1
7	0
12	-1

Domain: $x - 3 \geq 0$

$x \geq 3$

$[3, \infty)$

10) Let $f(x) = \dfrac{5x}{2x-4}$, evaluate $\dfrac{f(x+h) - f(x)}{h}$

a.) $f(x+h) = \dfrac{5(x+h)}{2(x+h)-4}$

b.) $f(x) = \dfrac{5x}{2x-4}$

c.) $\dfrac{\dfrac{5(x+h)}{2(x+h)-4} - \dfrac{5x}{2x-4}}{\dfrac{h}{1}} = \dfrac{\dfrac{(5x+5h)(2x-4) - 5x(2x+2h-4)}{(2x+2h-4)(2x-4)}}{\dfrac{h}{1}}$

$= \dfrac{\dfrac{10x^2 - 20x + 10xh - 20h - 10x^2 - 10xh + 20x}{(2x+2h-4)(2x-4)}}{\dfrac{h}{1}}$

$= \dfrac{20h}{(2x+2h-4)(2x-4)} \cdot \dfrac{1}{h}$

$= \boxed{-\dfrac{20}{(2x+2h-4)(2x-4)}}$

4

Solve.

11) $\sqrt{x+2} = 6$

$$x + 2 = 36$$
$$\boxed{x = 34} \checkmark$$

$$\underline{ck}$$

$$\sqrt{34+2} = 6$$
$$\sqrt{36} = 6$$
$$6 = 6 \checkmark$$

Perform the indicated operation. Write the result in the form a + bi.

12) $\dfrac{3}{8+i}$

$$\frac{3}{8+i} \cdot \frac{8-i}{8-i} = \frac{24-3i}{64-i^2} = \frac{24-3i}{64-(-1)}$$

$$= \frac{24-3i}{64+1}$$

$$= \frac{24-3i}{65}$$

$$= \boxed{\frac{24}{65} - \frac{3}{65}i}$$

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