Warm up

State the slope and y-intercept of the line.

1. $3x + 4y = 2$

$4y = -3x + 2$

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

2. $8x + 10 = 0$

m = und

b = none

3. Find the line perpendicular to $4x - 2y = 9$ through the point (10, -1)

$-2y = -4x + 9$

$y = 2x - \frac{9}{2}$

$y + 1 = -\frac{1}{2}(x - 10)$

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

GO COUGARS!

Homework Questions

y

35 $(-8, 1)$ $(-8, 7)$

$x = -8$

77 6,20,400 ↓ 2,000

$y = mx + b$

$20{,}400 = -2000(6) + b$

$x^2 - 6x - 27$

$\cdot -27$ $(x-9)(x+3)$

$+ -6$

$2x^2 + 11x - 40$

$\cdot -80$ $(2x^2 + 16x)(-5x - 40)$

$+ 11$

$2x(x+8) - 5(x+8)$

$(x+8)(2x-5)$

Section 1.2

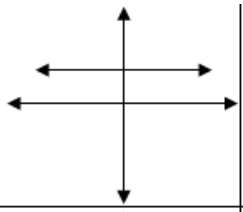
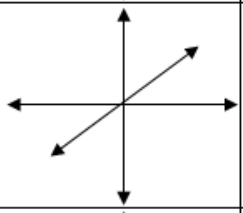
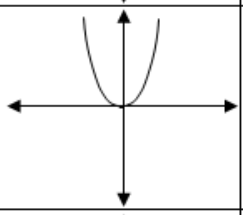
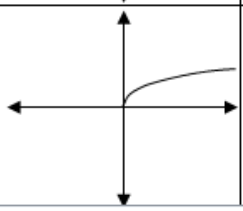
4 ways to represent a function

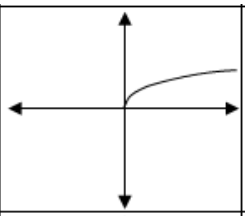
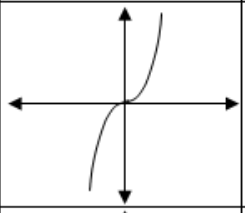
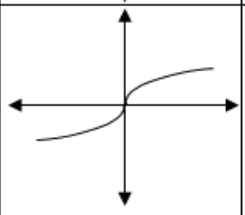
(Ordered pairs, tables, graph, equations)

Domain and range of ordered pairs and tables

evaluate

evaluate piecewise

$f(x) = c$		Constant	$f(x) = c$	D: $(-\infty, \infty)$ R: c
$f(x) = x$ (0, 0) (1, 1) (-1, -1)		Linear	$f(x) = Ax + B$	D: $(-\infty, \infty)$ R: $(-\infty, \infty)$
$f(x) = x^2$ (0, 0) (1, 1) (-1, 1)		Quadratic	$f(x) = Ax^2 + Bx + C$ Vertex form: $f(x) = a(x-h)^2 + k$	D: $(-\infty, \infty)$ R: $[0, \infty)$
$f(x) = \sqrt{x}$ (0, 0) (1, 1) (4, 2)		Square Root	$f(x) = A\sqrt{Bx + C} + D$	D: $[0, \infty)$ R: $[0, \infty)$

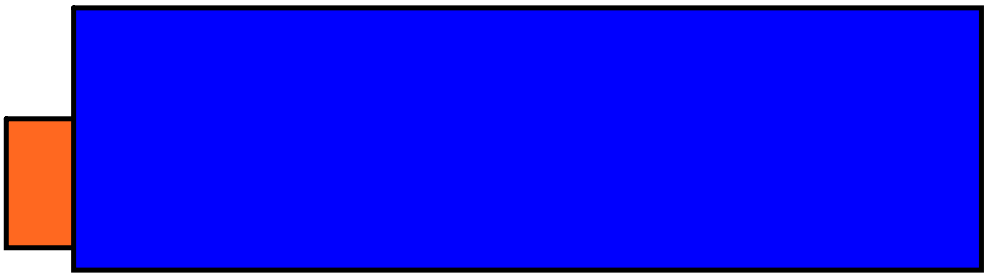
$f(x) = \sqrt{x}$ (0, 0) (1, 1) (4, 2)		Square Root	$f(x) = A\sqrt{Bx + C} + D$	D: $[0, \infty)$ R: $[0, \infty)$
$f(x) = x^3$ (0, 0) (1, 1) (-1, -1)		Cubic	$f(x) = Ax^3 + Bx^2 + Cx + D$ Other form; $f(x) = a(x - h)^3 + k$	D: $(-\infty, \infty)$ R: $(-\infty, \infty)$
$f(x) = \sqrt[3]{x}$ (0, 0) (1, 1) (-1, -1)		Cube Root	$f(x) = A\sqrt[3]{Bx + C} + D$	D: $(-\infty, \infty)$ R: $(-\infty, \infty)$

$f(x) = \frac{1}{x}$ (0, 0) (1, 1) (-1, -1)		Reciprocal	$f(x) = A\frac{1}{(Bx + C)} + D$	D: $(-\infty, 0)(0, \infty)$ R: $(-\infty, 0)(0, \infty)$
$f(x) = \lvert x \rvert$ (0, 0) (1, 1) (-1, 1)		Absolute Value	$f(x) = A\lvert Bx + C \rvert + D$	D: $(-\infty, \infty)$ R: $[0, \infty)$
$f(x) = a^x$ (0, 1) (1, a)		Exponential Base a	$f(x) = Aa^{Bx+C} + D$	D: $(-\infty, \infty)$ R: $(0, \infty)$

Definitions:

relation - equations or sets of values that are related

function - a relation such that for every x value (domain) there is one and only one y value (range)



State the domain and range of the ordered pairs

1. {(1, 2), (3, 4), (5, 6), (7, 6)}

Domain: 1, 3, 5, 7 Range: 2, 4, 6 Function? Yes

2. {(1, 2), (3, 4), (1, 6)}

Domain: 1, 3 Range: 2, 4, 6 Function? No

State the domain and range from the table of values

3.

x	y
1	1
2	2
3	3

Domain: 1, 2, 3

Range: 1, 2, 3

Function? yes

4.

x	y
1	2
1	3
1	4

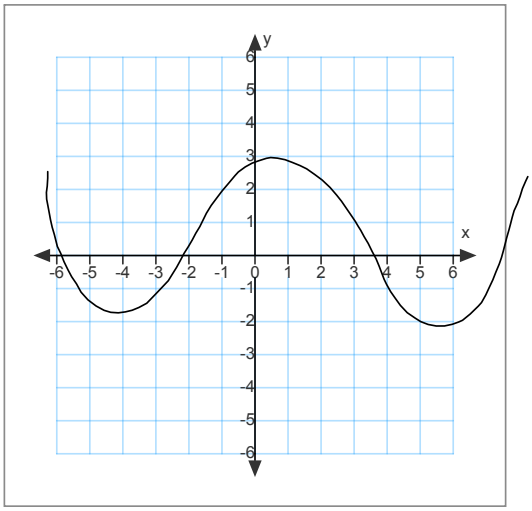
Domain: one

Range: two, three, four

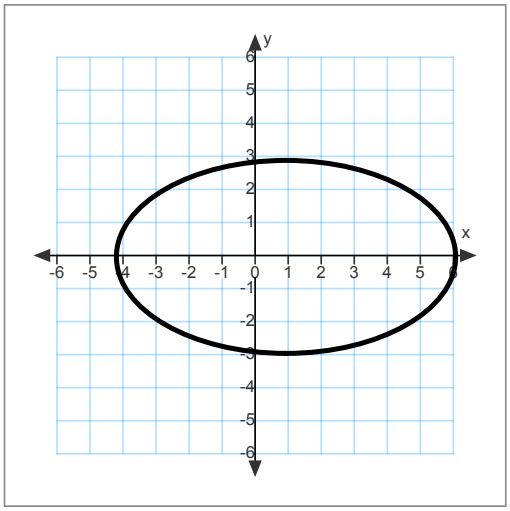
Function? No

Am I a function?

5.



6.



Algebraically determine if the relation is a function of y in terms of x. Solve for y

7. $2x+3y=6$

$y=-\frac{2}{3}x+2$ Yes

8. $x^2+y^2=3$

$y^2=3-x^2$

$y=\pm\sqrt{3-x^2}$ No

Standard notation: $y = 3x + 2$

Function notation: $f(x) = 3x + 2$

9. Evaluate: $f(2)$ $f(-5)$ $= -13$ $f(x-1)$

$f(2) = 3(2) + 2$

$= 8$

$f(x-1) = 3(x-1) + 2$

$3x - 3 + 2$

$3x - 1$

$f(x) = 3x + 2$

Try this one!

10. $f(x) = 10 - 3x^2$

find $f(2)$

$= 10 - 3(2)^2$

$10 - 3(4)$

$= -2$

$f(x-1)$

$10 - 3(x-1)^2$

$10 - 3(x^2 - 2x + 1)$

$10 - 3x^2 + 6x - 3$

$-3x^2 + 6x + 7$

Evaluating Piecewise Fucntions

11. $f(x)=\begin{cases}3x-4, & x<0\\ 3x+1, & x\geq 0\end{cases}$ find

$f(-2)$

$3(-2)-4$

$-6-4$

-10

$f(0)$

$3(0)+1$

$=1$

$f(2)$

$3(2)+1$

7

Homework

p 24 3-17 odd (omit #9),

23, 29, 33, 37, 41, 47, 51