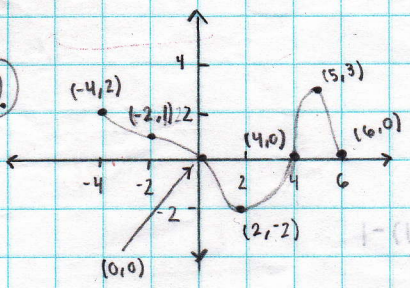
10

10.



a. f(0) = 0
f(6) = 0

b. f(2) = -2
f(-2) = 1

c. f(3) : NEGATIVE

d. f(-1) : POSITIVE

e. f(x) = 0 when
x = 0, 4, 6

f. f(x) < 0 when
x = -6, -5, 8

g. Domain of f: [-4, 6]

h. range of f: [-2, 3]

i. x-intercept(s):
(0,0) (4,0) (6,0)

j. y-intercept(s):
(0,0)

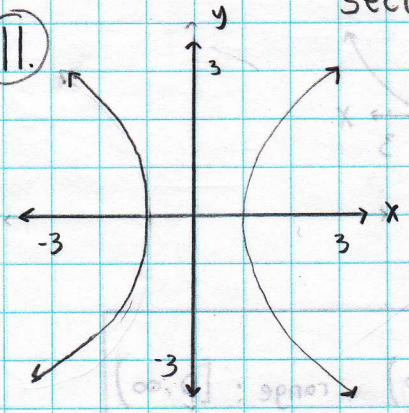
K. The line y = -1 intersects the graph 1 time.

L. The line x = 1 intersects the graph 3 times

M. 5

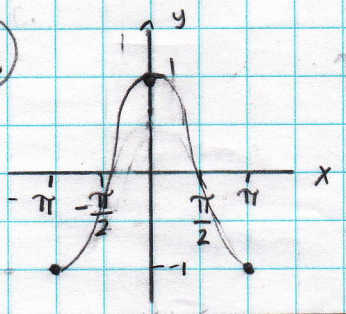
N. 2

11.



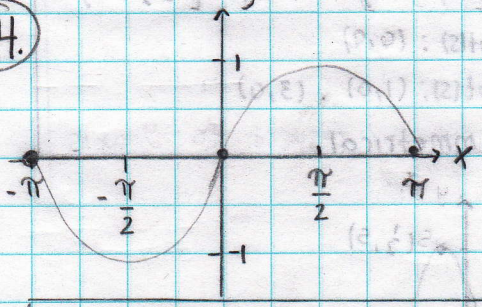
NOT A FUNCTION

13.



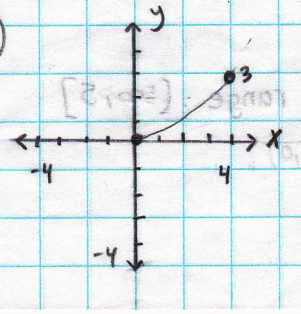
FUNCTION
a. domain: $[-\pi, \pi]$ range: $[-1, 1]$
b. (1,0) – y-int
c. no symmetry

14.



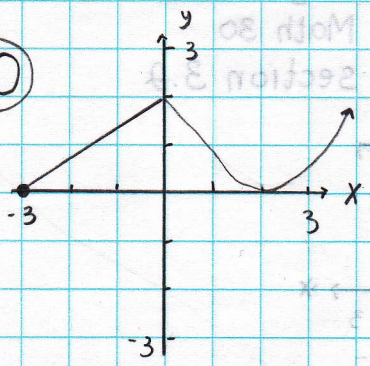
FUNCTION
a. domain $[-\pi, \pi]$ range: $[-1, 1]$
b. x-intercept(s): $(-\pi, 0)$ (0,0) $(\pi, 0)$
y-intercept(s): (0,0)
c. symmetric w/ respect to origin

18.



FUNCTION
a. domain [0,4]
range [0,3]
b. x-int : (0,0)
y-int : (0,0)
c. not symmetric

20



FUNCTION

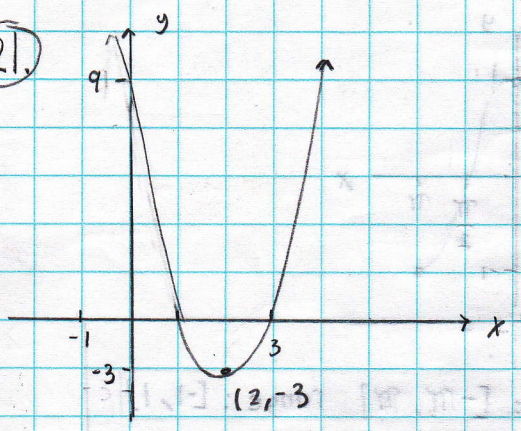
a. domain: $[-3, \infty)$ range: $[0, \infty)$

b. x-intercept(s): $(-3,0)$, $(2,0)$

y-intercept(s): $(0,2)$

c. not symmetrical

21.



FUNCTION

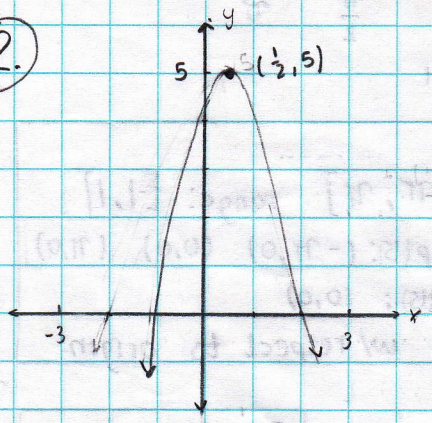
a. domain: $(-\infty, \infty)$ range $[-3, \infty)$

b. x-intercept(s): $(0,9)$

y-intercept(s): $(1,0)$, $(3,0)$

c. not symmetrical

22.



FUNCTION

a. domain $(-\infty, \infty)$ range: $(-\infty, 5]$

b. x-intercepts: $(-1,0)$ $(2,0)$

y-intercept(s): $(0,4)$

c. not symmetrical

23. $f(x) = 2x^2 - x - 1$

a. $(-1, 2)$ (x, $f(x)$)

$2 = 2(-1)^2 - (-1) - 1$

$2 = 2(1) + 1 - 1$

$2 = 2$

yes the point $(-1,2)$ is on the graph of f

b. $x = 2$

$f(2) = 2(2)^2 - (2) - 1$

$= 9$

$(2,9)$ is on the graph

c. $f(x) = -1$ $2x^2 - x - 1$

$-1 = 2x^2 - x - 1$

$0 = 2x^2 - x - 2$ $x = -\frac{1}{2}, 2$

$0 = 2x^2 - 4x + 1x - 2$

$0 = 2x(x-2) + 1(x-2)$

$0 = (2x+1)(x-2)$

d. domain of f: all real numbers

e. x-intercepts:

$0 = 2x^2 - x - 1$

$0 = (2x+1)(x-1)$

$2x + 1 = 0$ $x - 1 = 0$

$x = -\frac{1}{2}$ $x = 1$

$(-\frac{1}{2}, 0)$ $(1,0)$

f. y-intercepts:

$2x^2 - x - 1$

$2(0)^2 - (0) - 1$

$= -1$

$(0, -1)$

(24.) $f(x) = -3x^2 + 5x$

a. $(-1, 2)$
$x \quad f(x)$

$2 = -3(-1)^2 + 5(-1)$

$2 = -3 - 5$

$2 \neq -8$

No, the point $(-1,2)$ is not on the graph of f.

b. $x = -2$

$f(-2) = -3(-2)^2 + 5(-2)$

$f(-2) = -22$

$(-2, -22)$ is on the graph of f

C. $f(x) = -2$

$-2 = -3x^2 + 5x$

$+3x^2 - 5x = +3x^2 - 5x$

$3x^2 - 5x - 2 = 0$

$(3x + 1)(x - 2) = 0$

$3x + 1 = 0$ $\qquad$ $x - 2 = 0$

$-1 \quad -1$ $\qquad$ $x = 2$

$\frac{3x}{3} = \frac{-1}{3}$

$x = -\frac{1}{3}$

The points $\left(-\frac{1}{3}, -2\right)$ and $(2, -2)$ are on the graph

d. domain of f: all real numbers

e. x-intercepts: $\qquad x = 0$

$f(x) = -3x^2 + 5x \qquad -3x + 5 = 0$

$0 = -3x^2 + 5x \qquad x = \frac{5}{3}$

$0 = x(-3x + 5)$

$(0, 0) \quad \left(\frac{5}{3}, 0\right)$

f. y-intercepts

$f(x) = -3(0)^2 + 5(0)$ $\qquad (0, 0)$

(25.) $f(x) = \frac{x+2}{x-6}$

a. $(3, 14)$
$x \quad f(x)$

$14 = \frac{(14)+2}{(14)-6}$

$14 = \frac{16}{8}$

$14 \neq 2$

No, the point $(3, 14)$ is not on the graph of f.

b. $x = 4$

$f(4) = \frac{4+2}{4-6}$

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

$f(4) = -3$

$(4, -3)$

C. $f(x) = 2$

$\frac{2}{1} = \frac{x+2}{x-6}$

$x + 2 = 2(x - 6)$

$x + 2 = 2x - 12$

$-x \qquad -x$

$2 = x - 12$

$14 = x$

$f(14) = \frac{14+2}{14-6}$

$= \frac{16}{8}$

$f(14) = 2$

$x = 14$; the point $(14, 2)$ is on the graph of f.

d. domain of f: $\{x \mid x \neq 6\}$

e. x-intercepts:

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

$x+2=0$

$\boxed{x=-2\ ;\ (-2,0)}$

f. y-intercepts

$f(0)\ \frac{0+2}{0-6}\ \frac{2}{-6} = -\frac{1}{3}$

$\boxed{\left(0, -\frac{1}{3}\right)}$

(26) $f(x) = \frac{x^2+2}{x+4}$

a. $\left(\underset{x}{1}, \underset{f(x)}{\frac{3}{5}}\right)$

$\frac{3}{5} = \frac{(1)^2+2}{(1)+4}$

$\frac{3}{5} = \frac{3}{5}$

$\boxed{\text{YES, the point } \left(1, \frac{3}{5}\right) \text{ is on the graph of } f}$

b. $x=0$

$f(0) = \frac{(0)^2+2}{0+4}$

$\frac{2}{4} = \frac{1}{2}$

$\boxed{\left(0, \frac{1}{2}\right) \text{ is on the graph of } f}$

c. $f(x) = \frac{1}{2}$

$\frac{(\frac{1}{2})^2+2}{(\frac{1}{2})+4} = \frac{1}{2}$

$2x^2+4 = x+4$

$2x^2 - x = 0$

$x(2x-1) = 0$

$\boxed{x=0 \quad x=\frac{1}{2}}$

The points $\left(0, \frac{1}{2}\right)$ and $\left(\frac{1}{2}, \frac{1}{2}\right)$ are on the graph of f

d. $\boxed{\text{domain of } f:\ x \mid x \neq -4}$

e. x-intercepts

$0 = \frac{x^2+2}{x+4}$

$x^2+2 = 0$

$x^2 = -2$

$x = \pm\sqrt{-2}$

$\boxed{\text{no REAL SOLUTIONS, no } x\text{-intercepts}}$

f. y-intercept(s)

$f(x) = \frac{(0)^2+2}{(0)+4} = \frac{1}{2}$

$\boxed{\text{y-int: } \left(0, \frac{1}{2}\right)}$

(28) $f(x) = \frac{2x}{x-2}$

a. $\left(\underset{x}{\frac{1}{2}}, \underset{f(x)}{-\frac{2}{3}}\right)$

$-\frac{2}{3} = \frac{2(\frac{1}{2})}{(\frac{1}{2})-2}$

$-\frac{2}{3} = \frac{1}{-1.5}$ ✓

$\boxed{\text{Yes, the point } \left(\frac{1}{2}, -\frac{2}{3}\right) \text{ is on the graph}}$

b. $x=4$

$f(4) = \frac{2(4)}{(4)-2} = \frac{8}{2} = 4$

$\boxed{(4,4) \text{ is on the graph of } f}$