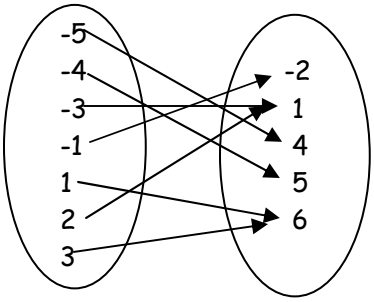
1.

a.



b. {(-5, 4), (-4, 5), (-3, 1), (-1, -2), (1, 6), (2, 1), (3, 6)}
c. domain: {-5, -4, -3, -1, 1, 2, 3}
d. range: {-2, 1, 4, 5, 6}
e. yes
f. {(4, -5), (5, -4), (1, -3), (-2, -1), (6, 1), (1, 2), (6, 3)}
g. no

2.

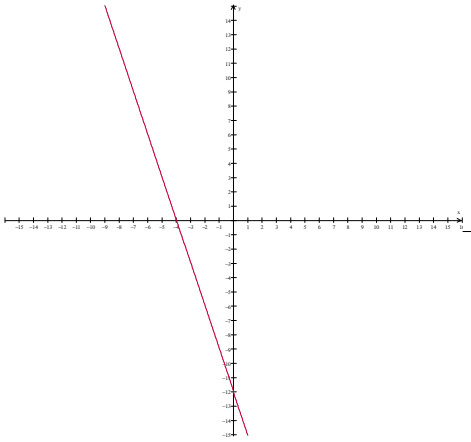
1. a. compress 3/5
b. yes
c. none
d. down 4
e. y = x
f. $(-\infty,\infty)$
g. $(-\infty,\infty)$
h. $y=-\frac{3}{5}x-4$

2. a. compress 1/5
b. yes
c. none
d. up 3
e. y = | x |
f. $(-\infty,\infty)$
g. $(-\infty,3]$
h. $y=-\frac{1}{5}|x|+3$

3. a. stretch 3
b. yes
c. right 2
d. down 1
e. y = | x |
f. $(-\infty,\infty)$
g. $(-\infty,-1]$
h. $y=-3|x-2|-1$

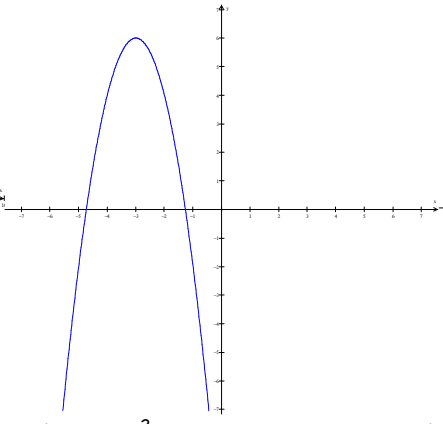
3.

1. a.



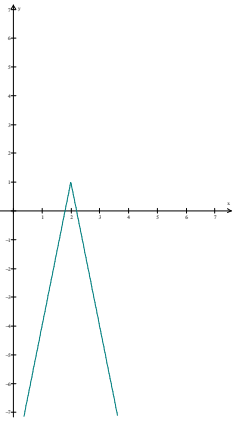
b. y = x
c. $(-\infty,\infty)$
d. $(-\infty,\infty)$

2. a.



b. $y = x^2$
c. $(-\infty,\infty)$
d. $(-\infty,6]$

3. a.



b. y = |x|
c. $(-\infty,\infty)$
d. $(-\infty,1]$

4.

a. $(3x-1)(9x^2+3x+1)$
b. $(2x^a-y^b)(x^a+6y^b)$
c. $(8x-7)(2x+3)$
d. $(2x-15)(x+1)$
e. $(3x-4)(x+7)$
f. $4x^2(3x+4)(2x+3)$
g. $y(2x+1)(4x-3y)$
h. $(5x^2+4y)(5x^2-4y)$
i. $9(2x+3y^2)(2x-3y^2)$
j. $(x^2-9)^2=(x+3)^2(x-3)^2$
k. $(3b+1)(2a-1)$

5. a. $x = 5, -\frac{2}{3}$ b. $x = 4, \frac{5}{2}$ c. $k = 2,5$

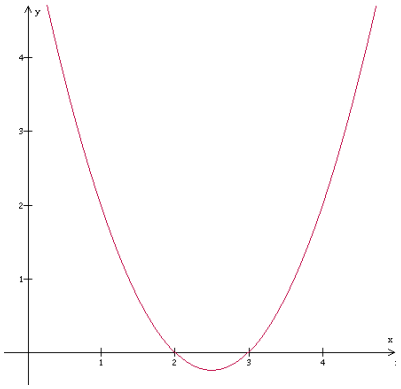
6.

a. $m = 2,3$ b. $b = \frac{2 \pm \sqrt{2}}{2}$ c. $x = 1,9$

e. $x = \frac{-3 \pm \sqrt{29}}{2}$ f. $x = \frac{4 \pm \sqrt{10}}{3}$ 9. g. $x = \frac{2}{3}$

7.

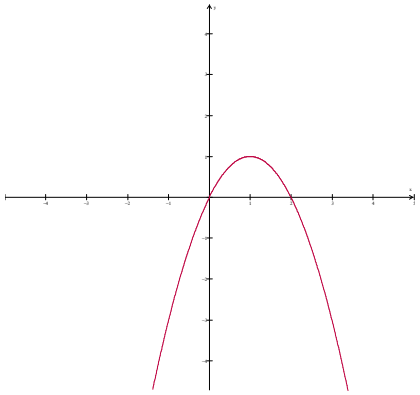
a.



intercepts : $(2,0),(3,0),(0,6)$

vertex : $\left(\frac{5}{2}, -\frac{1}{4}\right)$

b. $f(x) = 2x - x^2$

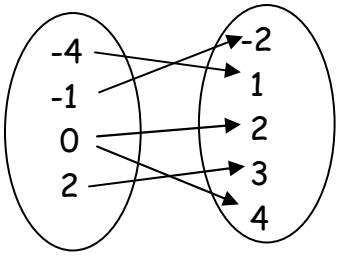


intercepts : $(0,0),(2,0)$

vertex : $(1,1)$

8. C

9.



Relation: {(-4, 1), (-1, -2), (0, 2), (0, 4), (2, 3)}
Domain: {-4, -1, 0, 2}
Range: {-2, 1, 2, 3, 4}
Function? NO
Inverse: {(1, -4), (-2, -1), (2, 0), (4, 0), (3, 2)}
Is the inverse a function? YES

10. a. y = 5x+7 b. y = 2x – 4

11.

a.

_____(6, ∞)_____ a. Domain

_____(-∞,4)u(4,∞) _____ b. Range

_____NO_____ c. Function?

b.

_____(-∞, ∞)_____ a. Domain

_____{-2, 3, (6, ∞)}_____ b. Range

_____NO _____ c. Function?

12.

a. $f(h^2 - 3) = 6h - h^4 - 8$

b. $g\left(\frac{3}{5}\right) = \mathbf{\frac{59}{30}}$

c. $f(5 + h) - f(-3) = -16 - 10h - h^2$

13. $a_1 = 1$, $a_2 = -1$, $a_3 = -3$, $a_4 = -5$

14. Identify which of the following are arithmetic sequences or geometric sequences and provide a rule.

a. $\{8, 12, 16, 20, 24, ...\}$
arithmetic, $a_n = 4n+4$

b. $\{1, -2, 4, -8, ...\}$
geometric, $a_n = (-2)^{n-1}$

15. a. $a_{10} = 44$, $S_5 = 80$

b. $a_{10} = -512$, $S_5 = 11$