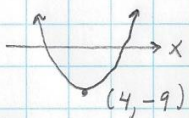
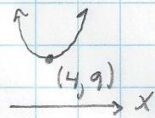
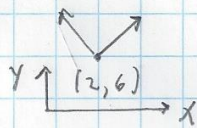
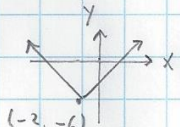


Lesson 2A.1.

1) a)  $y - 7 = x^2 - 8x$  ,  $y + 9 = (x - 4)^2$  ,   $y = x^2 - 8x + 7$ ,  
 $0 = x^2 - 8x + 7 = (x - 1)(x - 7)$  ,  $\Rightarrow$  x-ints.  $x = 1, 7$   $\leftarrow$  y-ints.  $y(0) = 7$   
domain:  $-\infty < x < \infty$   $\leftarrow$  range:  $-9 \leq y < \infty$

b)  $y - 25 = x^2 - 8x$  ,  $y - 9 = (x - 4)^2$  ,   $\Rightarrow$  x-ints. none  $\leftarrow$   
y-ints.  $y(0) = 25$   
domain:  $-\infty < x < \infty$   $\leftarrow$  range:  $9 \leq y < \infty$

2) a) vertex = (2, 6)  x-ints. none  $\leftarrow$   
 $x < 2 \Rightarrow y - 6 = -(x - 2)$  ,  $y = -x + 8$   
y-ints.  $y(0) = 8$   
domain:  $-\infty < x < \infty$   $\leftarrow$  range:  $6 \leq y < \infty$

b) vertex = (-2, -6)   $x < -2 \Rightarrow y + 6 = -(x + 2)$  ,  $y = -x - 8$   
 $x > -2 \Rightarrow y + 6 = x + 2$  ,  $y = x - 4$   
x-ints:  $0 = -x - 8$  ,  $x = -8$   $\leftarrow$   $0 = x - 4$  ,  $x = 4$   
y-ints:  $y(0) = 0 - 4 = -4$   
domain:  $-\infty < x < \infty$   $\leftarrow$  range:  $-6 \leq y < \infty$

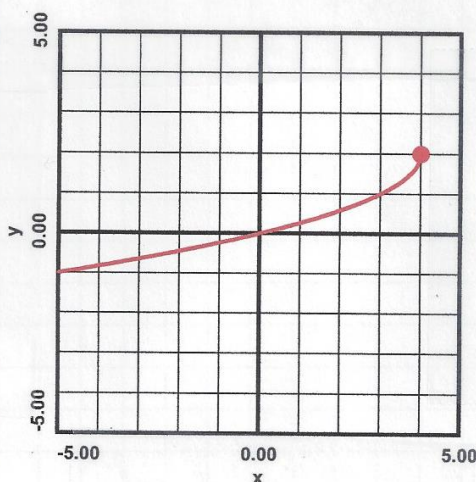
3)  $y = 2 - \sqrt{4 - x}$

a)

x	y
-5	-1
0	0
3	1
4	2

b)

c) domain:  $-\infty < x \leq 4$   
range:  $-\infty < y \leq 2$



# Homework #2A

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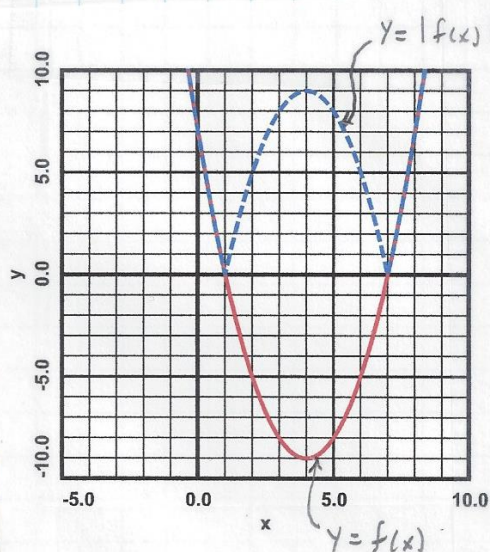
## Lesson 2A.2.

4)  $f(x) = x^2 - 8x + 7$

a)

x	f(x)	f(x)
0	7	7
1	0	0
2	-5	5
3	-8	8
4	-9	9
5	-8	8
6	-5	5
7	0	0
8	7	7

b)



c)  $y = f(x)$ : domain:  $-\infty < x < \infty$  range:  $-9 \leq y < \infty$   
 $y = |f(x)|$ : domain:  $-\infty < x < \infty$  range:  $0 \leq y < \infty$

## Lesson 2A.3.

5)  $f(x) = x^2 - 11x + 37$ ,  $g(x) = 5x - 8$ .

a)  $f(g(x)) = f(g) = g^2 - 11g + 37 = (5x - 8)^2 - 11(5x - 8) + 37 =$   
 $= (25x^2 - 80x + 64) + (-55x + 88) + 37 = 25x^2 - 135x + 189$

b)  $g(f(x)) = g(f) = 5f - 8 = 5(x^2 - 11x + 37) - 8 = 5x^2 - 55x + 185 - 8 =$   
 $= 5x^2 - 55x + 177$

c)  $g(3) = 7$ ,  $f(g(3)) = f(7) = 9$

d)  $f(3) = 13$ ,  $g(f(3)) = g(13) = 57$



# Homework #2A

3 of 5

6)

a)  $m = 40 \text{ g} \leftarrow$

b)  $g = 0.2642 \text{ l} \leftarrow$

c)  $m(g(l)) = m(l) = 40(0.2642 \text{ l}) = 10.568 \text{ l} \leftarrow$

d)  $k = 1.609 \text{ m} \leftarrow$

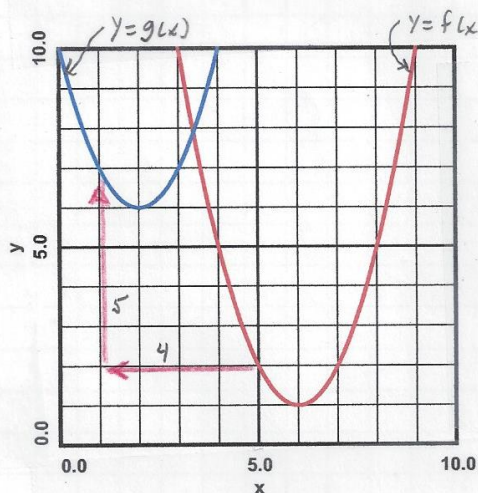
e)  $k(m(l)) = k(l) = 1.609(10.568 \text{ l}) = 17.033 \text{ l} \leftarrow$

The car gets 17.033 kilometers per liter of gas  $\leftarrow$

## Lesson 2A.4.

7) b)  $g(x) = f(x+4) + 5 = (x+4)^2 - 12(x+4) + 37 + 5 = (x^2 + 8x + 16) + (-12x - 48) + 37 + 5 =$   
 $= x^2 - 4x + 10 \leftarrow$

a) c)



## Lesson 2A.5.

8)

a) see next page

b)  $g(x) = 2f(x) = 2\left(\frac{1}{2}x^2 - 8x + 34\right) =$   
 $= x^2 - 16x + 68 \leftarrow$

c) see next page

d)  $h(x) = g(x+5) - 3 =$   
 $= (x+5)^2 - 16(x+5) + 68 - 3 =$   
 $= (x^2 + 10x + 25) + (-16x - 80) + 68 - 3 =$

$= x^2 - 6x + 10 \leftarrow$

9) a)  $k(x) = f(x+5) - 1.5 = \frac{1}{2}(x+5)^2 - 8(x+5) + 34 - 1.5 =$   
 $= \frac{1}{2}(x^2 + 10x + 25) - 8(x+5) + 34 - 1.5 = \left(\frac{1}{2}x^2 + 5x + 12.5\right) + (-8x - 40) + 34 - 1.5 =$   
 $= \frac{1}{2}x^2 - 3x + 5 \leftarrow$

b) see next page

c)  $h(x) = 2k(x) = 2\left(\frac{1}{2}x^2 - 3x + 5\right) = x^2 - 6x + 10 \leftarrow$

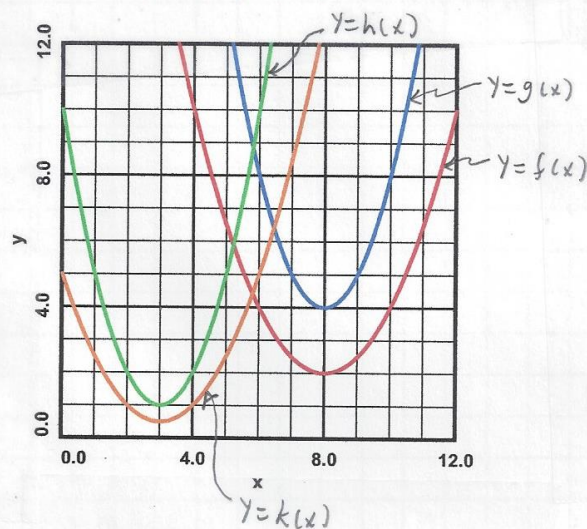


# Homework #2A

40F5

8) a) c)

9) b)



## Lesson 2A.6.

10) a)  $g(x) = f(3x) = \frac{1}{3}(3x)^2 - 4(3x) + 15 = \frac{1}{3}(9x^2) - 12x + 15 = 3x^2 - 12x + 15$

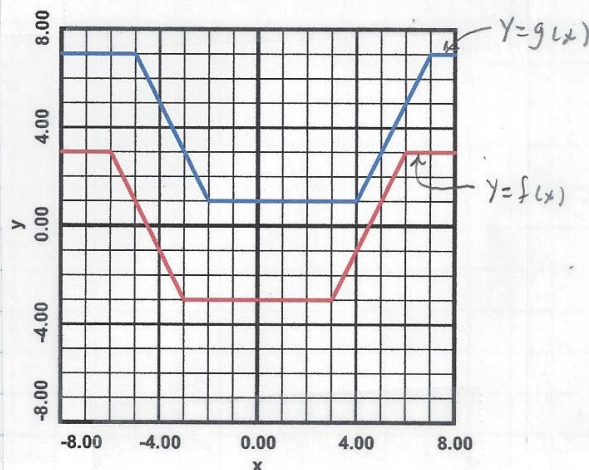
b)  $h(x) = g(x-7) - 2 = 3(x-7)^2 - 12(x-7) + 15 - 2 = 3(x^2 - 14x + 49) - 12(x-7) + 15 - 2 = (3x^2 - 42x + 147) + (-12x + 84) + 15 - 2 = 3x^2 - 54x + 244$

11) a)  $k(x) = f(x-21) - 2 = \frac{1}{3}(x-21)^2 - 4(x-21) + 15 - 2 = \frac{1}{3}(x^2 - 42x + 441) - 4(x-21) + 15 - 2 = (\frac{1}{3}x^2 - 14x + 147) + (-4x + 84) + 15 - 2 = \frac{1}{3}x^2 - 18x + 244$

b)  $h(x) = k(3x) = \frac{1}{3}(3x)^2 - 18(3x) + 244 = \frac{1}{3}(9x^2) - 54x + 244 = 3x^2 - 54x + 244$

## Lesson 2A.7.

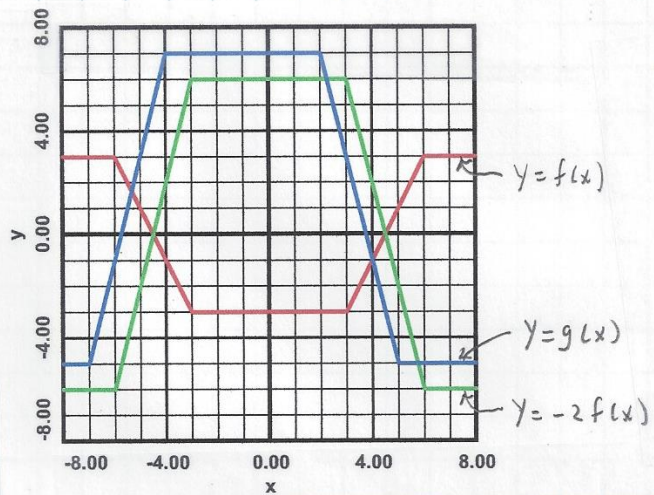
12)  $g(x) = f(x-1) + 4$



# Homework #2A

50F5

13)  $g(x) = -2f(x+1) + 1$



14)  $g(x) = f(3x-4) + 3$

