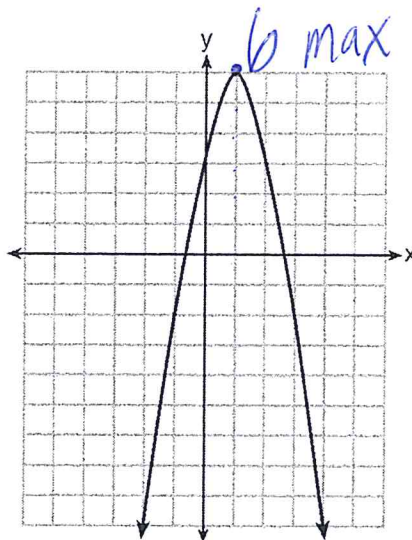
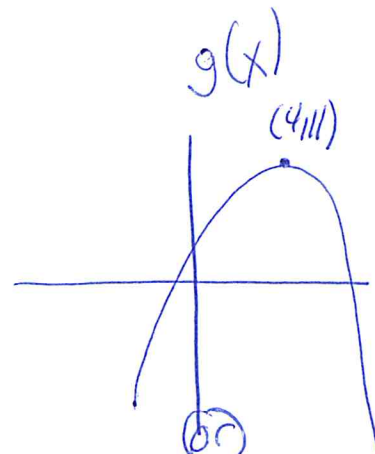


Key Points

1. Let f be the function represented by the graph below.



2nd Calc: maximum



Let g be a function such that $g(x) = -\frac{1}{2}x^2 + 4x + 3$. Determine which function has the larger maximum value. Justify your answer.

x	y
1	13/2
2	9
3	21/2
4	11
5	21/2
6	9
7	13/2

(4, 11) → max

from table →

Q Which function has the largest maximum?

(1) $y = -x^2 + 2x - 1$

x	y
-3	-2
-2	1
-1	2
0	1
1	-2

(2) $y = -2x^2 - 3x + 4$

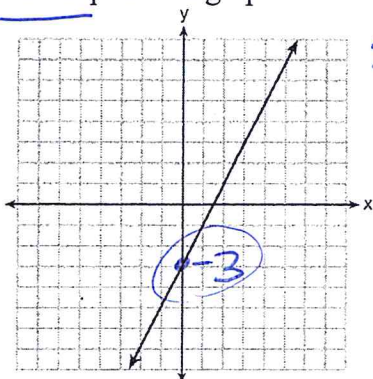
(3) $y = -2x^2 - 3x + 4$

(4) $y = -x^2 + 2x - 1$

2nd Calc: maximum (-.75, 5.125)

3. Which function has the same y -intercept as the graph below?

- $y = \frac{12-6x}{4}$ $y = -\frac{3}{2}x + 3$
- $27 + 3y = 6x$
- $6y + x = 18$
- $y + 3 = 6x$



2) $27 + 3y = 6x$
 $3y = 6x - 27$
 $y = 2x - 9$

3) $6y + x = 18$
 $6y = -x + 18$
 $y = -\frac{1}{6}x + 3$

4) $y + 3 = 6x$
 $y = 6x - 3$

$y = 6x - 3$

4. Which quadratic function has the largest maximum?

1) $h(x) = (3-x)(2+x)$ 2nd Calc max: 6.25

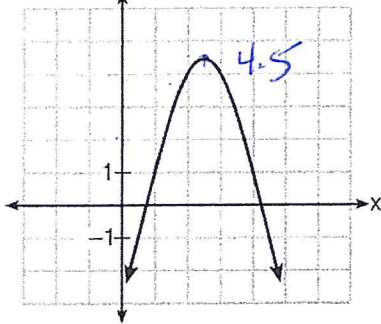
2)

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

≈ 9.5

3) $k(x) = -5x^2 - 12x + 4$ 2nd Calc max: 11.2

4) $g(x)$



5. The graph representing a function is shown below.

Which function has a minimum that is less than the one shown in the graph?

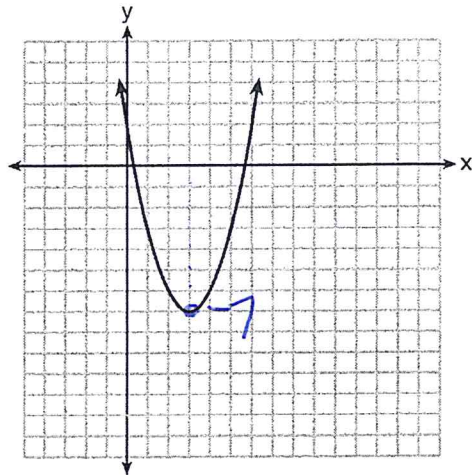
1) $y = x^2 - 6x + 7$ -2

2) $y = |x + 3| - 6$ -2

3) $y = x^2 - 2x - 10$ -11

4) $y = |x - 8| + 2$ 2

-11 < -7



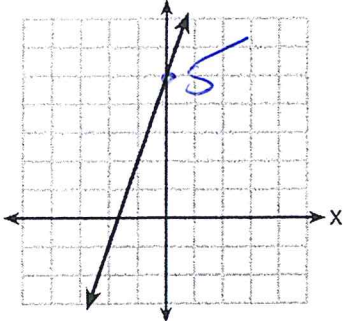
6. Which function has the greatest y-intercept?

1) $f(x) = 3x + 0$ 0

2) $2x + 3y = 12$ 4

3) the line that has a slope of 2 and passes through (1, -4) -6

4) $f(x)$



2) $2x + 3y = 12$
 $\frac{3y}{3} = \frac{-2x + 12}{3}$

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

3) $y - y_1 = m(x - x_1)$

$y + 4 = 2(0 - 1)$

$y + 4 = 2(-1)$

$y + 4 = -2$

$y = -6$

7. The x -value of which function's x -intercept is larger, f or h ? Justify your answer.

$y=0$

$f(x) = \log(x-4)$ (5,0)

$f(x)$
5 > 2

2

x	h(x)
-1	6
0	4
1	2
2	0
3	-2

2nd Calc
Maximum

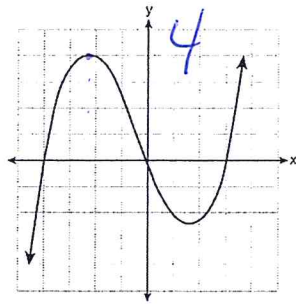
8. Which function has the highest local maximum?

$f(x) = x^3 + 4x^2 - 2x - 8$

7.051..

$f(x)$
7.051.. > 4

$g(x)$



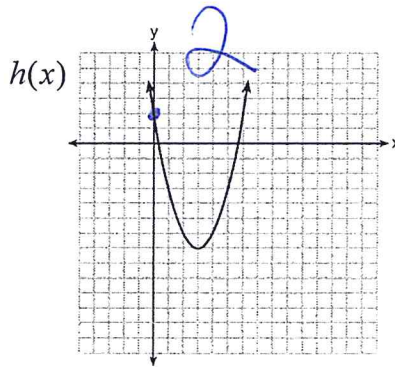
9. Which graph has the greatest y -intercept?

$x=0$

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

$g(x) = \left(\frac{1}{2}\right)^{x+1} + 3$

(0, 3.5)



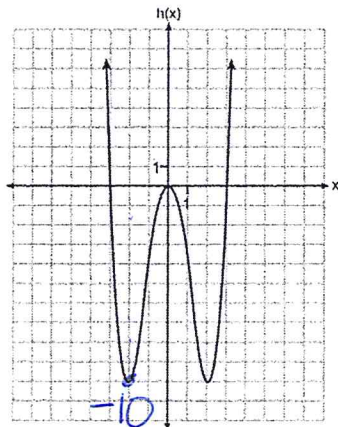
$f(x)$ 5 > 3.5 > 2

10. Which graph has a smaller relative minimum?

2nd Calc
Minimum

$g(x) = x^3 + 4x^2 - 2x - 10$

(.23.., -10.23..)



$g(x)$
-10.23.. < -10

