

# Math 260S Lab Hour

## 4. Graphs of Functions

Graph the linear function.

1)  $f(x) = 3x + 6$

1) \_\_\_\_\_

Sketch the graph of the basic function. Label at least three points.

2)  $f(x) = x^2$

2) \_\_\_\_\_

3)  $f(x) = x^3$

3) \_\_\_\_\_

4)  $f(x) = \sqrt{x}$

4) \_\_\_\_\_

5)  $f(x) = |x|$

5) \_\_\_\_\_

Graph the function by transformations.

6)  $G(x) = -2|x - 5| + 4$

6) \_\_\_\_\_

Explain how to obtain the graph of the given quadratic function from the basic graph of  $y = x^2$ .

7)  $f(x) = x^2 + 2$

7) \_\_\_\_\_

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

8) \_\_\_\_\_

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

9) \_\_\_\_\_

Express the quadratic function in the form  $f(x) = a(x - h)^2 + k$  and sketch the graph.

10)  $f(x) = -x^2 - 4x + 5$

10) \_\_\_\_\_

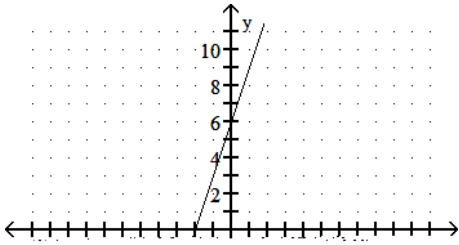
11)  $f(x) = 4x^2 + 8x + 2$

11) \_\_\_\_\_

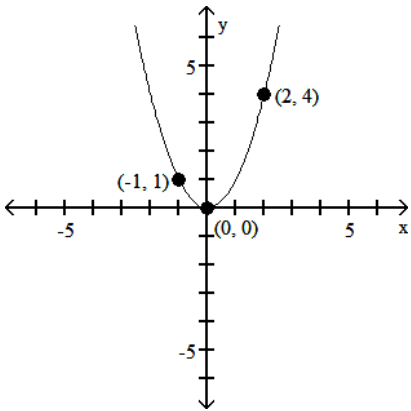
Answer Key

Testname: MATH 260S LAB HOUR (4. GRAPHS OF FUNCTIONS)

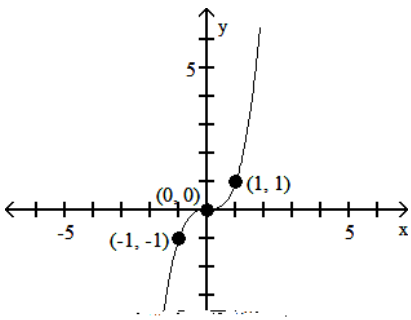
1)



2)



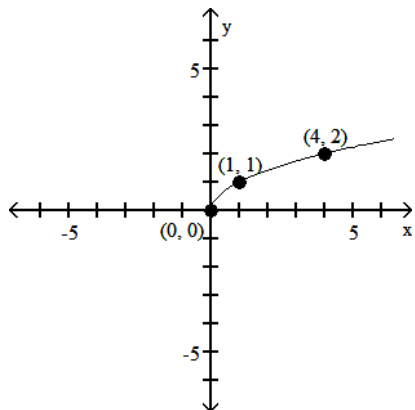
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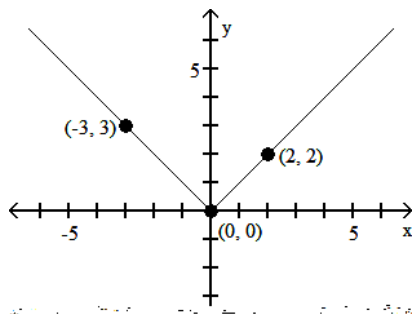
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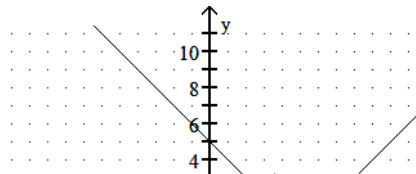
4)



5)



6)



7) Take the graph of  $y = x^2$  and shift it 2 units up.

8) Take the graph of  $y = x^2$  and shift it 4 units to the left.

9) Take the graph of  $y = x^2$  and shift it 2 units to the left and 8 units up.

10)  $f(x) = -(x + 4)^2 + 11$   
vertex: (-4, 11)

11)  $f(x) = 4(x + 1)^2 - 2$   
vertex: (-1, -2)