Name _____

MATH 124
TEST 2
Sec. 2.1 - 2.3, 3.1 – 3.4

Directions: Show work whenever possible. Points may be given for partially correct answers. Points may be deducted for insufficient or nonsensical steps even if the answer is correct. DO NOT USE MATH APPS!

1. Given (-3,-5) and (4,5):

A. Find the midpoint of the line segment between them.

B. Find the distance between the 2 points. Express your answer as an integer or simplified radical.

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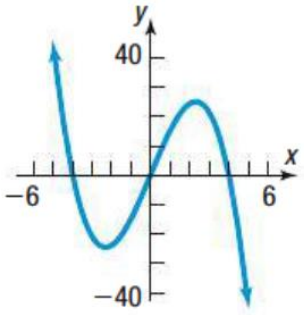
2. Answer the questions regarding the following graph:



A. Does it have any symmetry and if so what kind?

B. What are the intercepts? Use ordered pairs.

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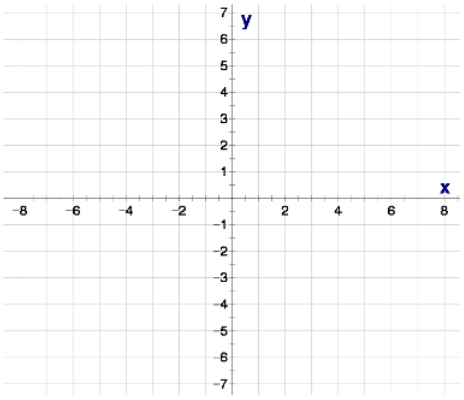
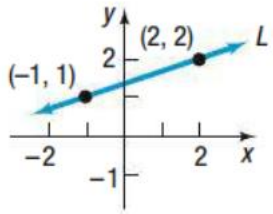
3. Draw a graph that contains the points (-8, -6), (-4,4) and (-2,0) and is symmetric with respect to the origin.



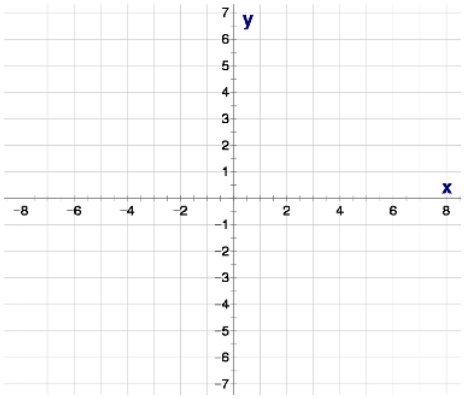
4. Write an equation of the line L in:



A. Slope-intercept form

B. Point-slope form

5. Write the equation of the line in slope-intercept form that is perpendicular to -2x + y = -3 through (-1,-2). Graph both lines on the same axes.



6. Give an example of a relation that is NOT a function and explain why.

7. Given f(x) = $\frac{x+1}{x^2}$, find the following:

A. f(5)

B. f(0)

C. f(-x)

D. f(2x)

8. Find the domain of the following functions. Express solutions using interval notation.

A. $f(x) = \frac{x^2-1}{x+4}$

B. $g(x) = \sqrt{3x+1}$

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9. Give $f(x) = x^2 + 1$ and $g(x) = x^3 + 10$, find the following. Simplify your answers.

A. (f - g)(x)

B. (f·g)(x)

C. (f + g)(-2)

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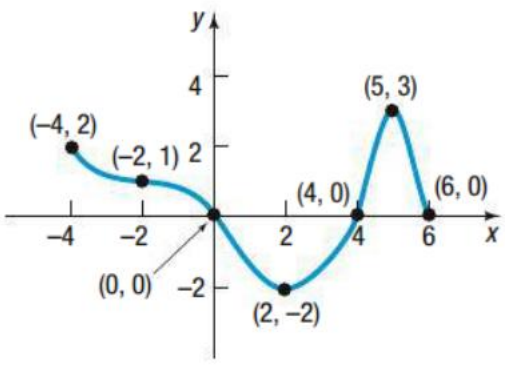
10. Use the graph of function f to answer the following.



A. Find x such that f(x) = 3

B. Find f(-2)

C. What is the domain of f?

D. What is the range of f?

E. For what values of x is $f(x) \leq 0$?

11. Given f(x) = $\frac{2x}{x-2}$

A. Is the point $\left(\frac{1}{2}, -\frac{2}{3}\right)$ on the graph of f?

B. If x = 4, what is f(x)?

C. If f(x) = 1, what is x?

D. What are the x-intercept(s)? (If none write *none*)

E. What is the y-intercept? (If none write *none*)

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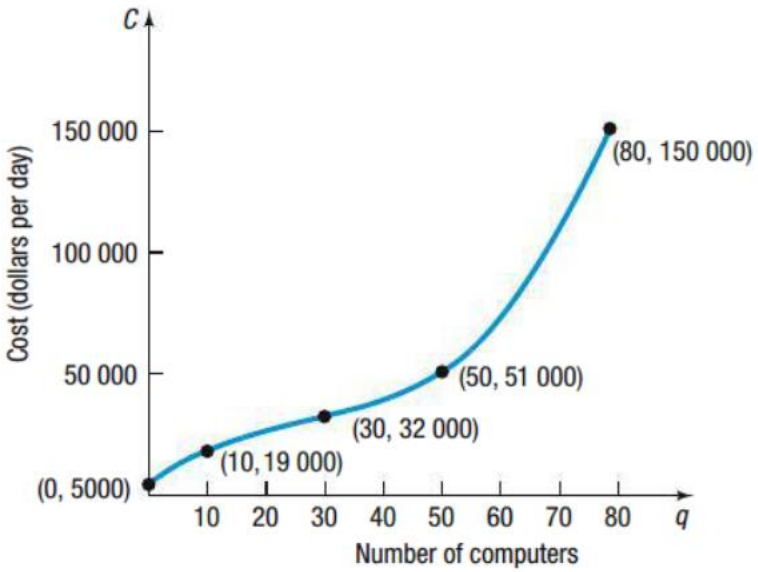
12. The following graph represent the cost C of manufacturing q computers in a day.

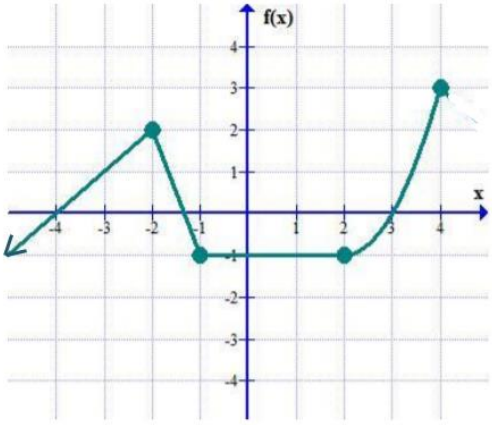


A. Find C(0). Interpret this value.

B. Find C(30). Interpret this value.

C. If the cost in a given day is $51,000, how many computers were manufactured that day?

13. Answer the questions about the following graph.



A. List the intercepts using ordered pairs.

B. Domain

C. Range

D. Interval(s) on which the graph is increasing

E. Interval(s) on which the graph is decreasing

F. Interval(s) on which the graph is constant

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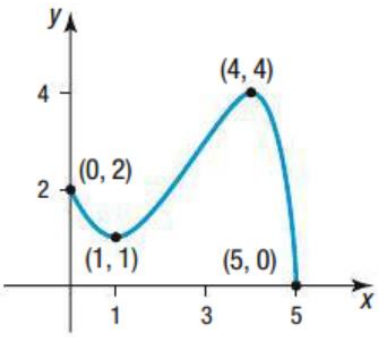
14. Identify any local or absolute extrema. Assume that a local max/min *can* occur at an endpoint.



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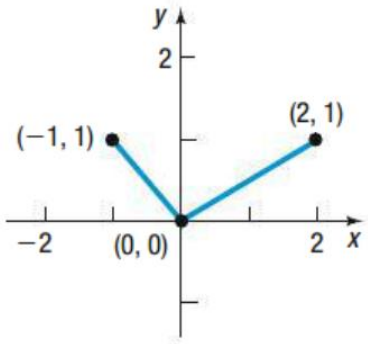
15. Write a piecewise-defined function for this graph.



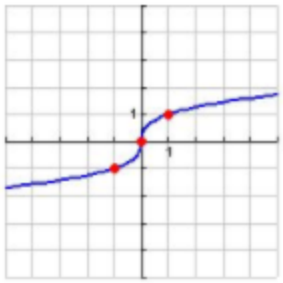
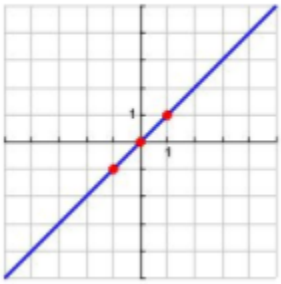
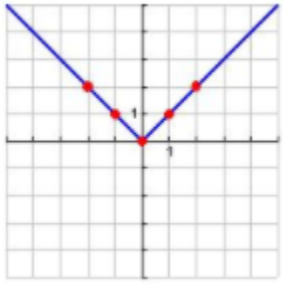
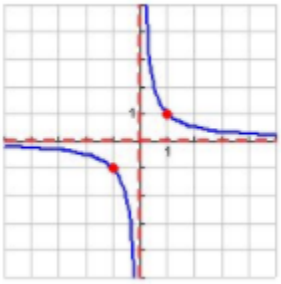
$$f(x) = \begin{cases} \\ \\ \end{cases}$$

A. What is f(-1)?

B. What is f(1)?

16. Match each function with its graph by writing the letter of the correct answer.

Also next to each graph, circle whether it is odd, even or neither.

f(x) = x^3 _____	**A.** 	Odd Even Neither
f(x) = $\sqrt[3]{x}$ _____	**B.** 	Odd Even Neither
f(x) = $\lvert x \rvert$ _____	**C.** 	Odd Even Neither
f(x) = x _____	**D.** 	Odd Even Neither
f(x) = $\frac{1}{x}$ _____	**E.** 	Odd Even Neither