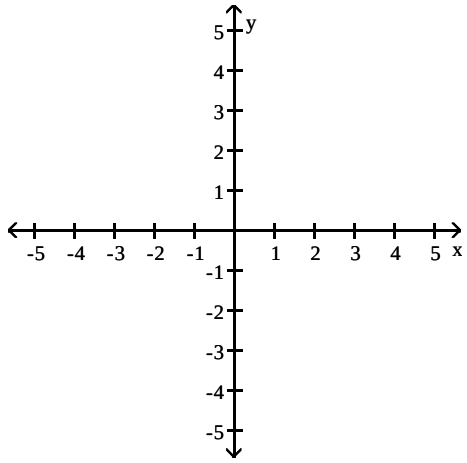
Math 131 Group Review Assignment (1.2, 2.5, 3.2, 4.1, 5.1)

Print Name_____

ESSAY. Write your answer in the space provided. Provide all work to earn partial credit when applicable. Circle your final answer. Include units (dollars, gallons, etc.) where applicable.

Graph the function.

1) $f(x) = \sqrt{x + 3}$



MULTIPLE CHOICE. Choose the answer that best completes the statement or answers the question. Clearly write your choice in the blank provided. Also fill in the scantron answer sheet. There is only one answer per question. If a question appears to have no instructions, use the instructions for the previous question. Good luck and have fun!

Is the following correspondence a function?

2) Domain: All students attending Laughlin Community College 2) _____
Correspondence: Each student's Social Security Number
Range: A set of Social Security Numbers

A) Yes

B) No

Tell whether or not the relation is a function.

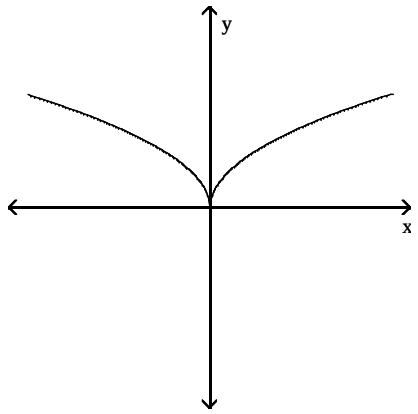
3) {(2,–7), (2,–5), (5,1), (9,–7), (10,8)} 3) _____

A) Yes

B) No

Determine whether the graph is the graph of a function.

4) 4) _____



A) Yes

B) No

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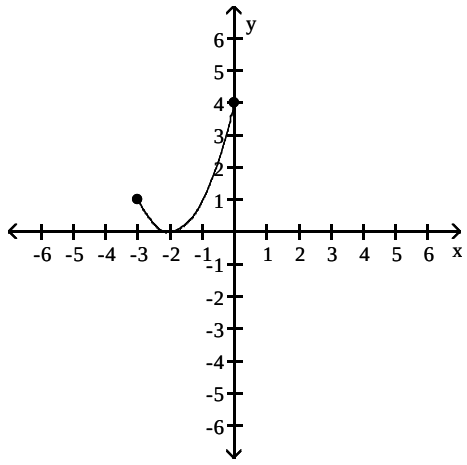
Find the domain and range of the function represented in the graph.

5)



Solve the problem.

6) The function h described by $h(t) = -16t^2 + 33.1t + 124.26$ gives the height of a ball thrown upward with a speed of 33.1 feet per second from a 124.26 ft high window t seconds after it is thrown until it hits the ground. Find the height of the ball 1.4 seconds after it is thrown.

Evaluate as requested.

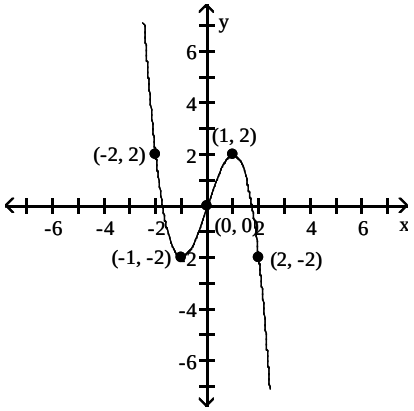
7) Given that $g(x) = 5x^3$, find $g(5 + h)$.

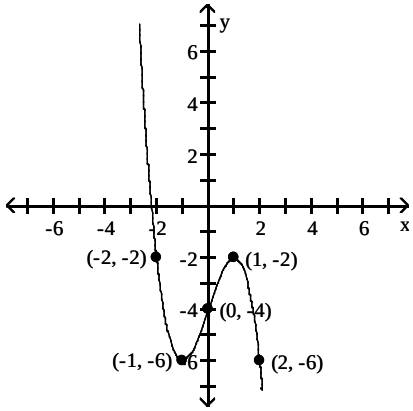
The given point is on the graph of y = f(x). Find a point on the graph of y = g(x).

8) $g(x) = f(x) - 1$; (6, 14)

Given the graph of the function $f(x) = -x^3 + 3x$; find a formula for g(x) .

9) $f(x) = -x^3 + 3x$ $g(x) =$





Given the function f, match the function g with a transformation of f.

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

Find the zeros of the function. Give exact answers.

11) $f(x) = x^2 - 5x - 8$

Solve by completing the square to obtain exact solutions.

12) $2x^2 - 2x - 4 = 0$

Solve.

13) $5x^2 + 35 = 0$

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Consider only the discriminant, $b^2 - 4ac$, to determine whether one real–number solution, two different real–number solutions, or two different imaginary–number solutions exist.

14) $7 + 3x^2 = 8x$ 14) _____

A) Two different imaginary–number solutions

B) One real solution

C) Two different real–number solutions

ESSAY. Write your answer in the space provided. Provide all work to earn partial credit when applicable. Circle your final answer. Include units (dollars, gallons, etc.) where applicable.

Find the correct end behavior diagram for the given polynomial function.

15) $f(x) = \frac{2}{3}x^7 + 4x^2 - 3$

Find the zeros of the polynomial function and state the multiplicity of each.

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

Classify the polynomial as constant, linear, quadratic, cubic, or quartic, and determine the leading term, the leading coefficient, and the degree of the polynomial.

17) $f(x) = 14 - x$

Determine whether the given function is one–to–one. If it is one–to–one, find a formula for the inverse.

18) $f(x) = (x + 8)^3$

Find a formula for the inverse of the function described below.

19) 32° Fahrenheit = 0° Celsius. A function that converts temperatures in Fahrenheit to those in Celsius is $f(x) = \frac{5}{9}(x - 32)$.

SHORT ANSWER. Solve. Show your work and use algebraic methods. Circle your final answer and include units if applicable.

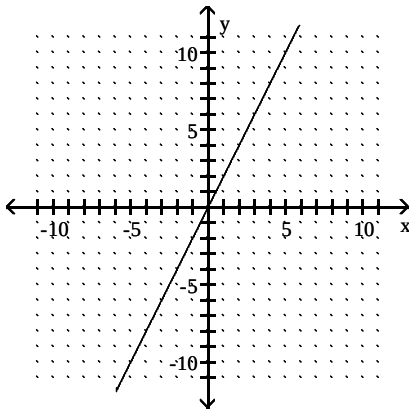
For the function f, use composition of functions to show that f^{-1} is as given.

20) $f(x) = \frac{7}{4}x$, $f^{-1}(x) = \frac{4}{7}x$ 20) _____

ESSAY. Write your answer in the space provided. Provide all work to earn partial credit when applicable. Circle your final answer. Include units (dollars, gallons, etc.) where applicable.

The graph of a one–to–one function f is given. Sketch the graph of the inverse function f^{-1}, on the same set of axes. Use a dashed line for the inverse.

21)



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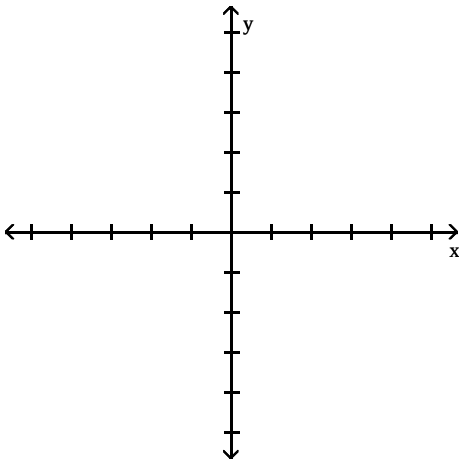
Determine whether the function is one–to–one by graphing and using the horizontal line test.

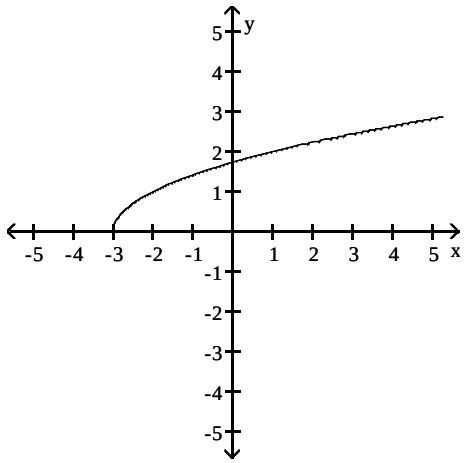
22) $f(x) = 2x - 3$ 22) _____



A) Yes

B) No

1)



Objective: (1.2) Graph Function

2) A
Objective: (1.2) Determine Whether Correspondence is a Function (Y/N)

3) B
Objective: (1.2) Determine Whether Relation is a Function: Ordered Pairs (Y/N)

4) A
Objective: (1.2) Determine if Graph Represents a Function

5) Domain: [–3, 0]; Range: [–0, 4]
Objective: (1.2) Find Domain and Range Given Graph

6) 139.24 ft
Objective: (1.2) Solve Apps: Functions

7) $625 + 375h + 75h^2 + 5h^3$
Objective: (1.2) Evaluate Function Given Equation

8) (6, 13)
Objective: (2.5) Find Corresponding Point on Transformed Graph

9) $g(x) = -x^3 + 3x - 4$
Objective: (2.5) Find Equation of Transformed Function from Graph

10) f(x – 4)
Objective: (2.5) Match Function to Transformation

11) $\frac{5 \pm \sqrt{57}}{2}$
Objective: (3.2) Find Zeros of Function (Exact)

12) –1, 2
Objective: (3.2) Solve by Completing the Square

13) $\pm\sqrt{7}\,i$
Objective: (3.2) Solve Quadratic Equation by Factoring or Square Root Principle

14) A
Objective: (3.2) Use Discriminant to Identify Solutions

15) 
Objective: (4.1) Determine End Behavior of Polynomial Function

16) –8, multiplicity 1; –1, multiplicity 1; 1, multiplicity 1
Objective: (4.1) Find Zeros of Polynomial Function; State Multiplicities

17) Linear; –x; –1; 1
Objective: (4.1) Classify Polynomial, Identify Leading Term and Degree

18) $f^{-1}(x) = \sqrt[3]{x} - 8$
Objective: (5.1) Find Equation of Inverse Function II

19) $f^{-1}(x) = \frac{9}{5}x + 32$

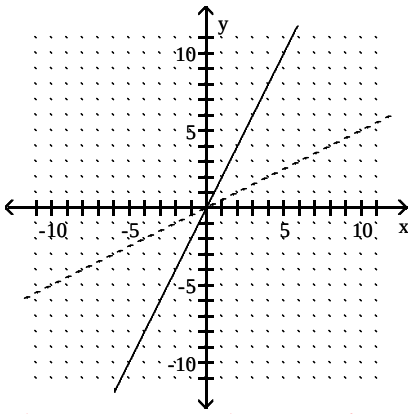
Objective: (5.1) Solve Apps: Inverse Functions

20) 1. $(f^{-1} \circ f)(x) = f^{-1}(f(x)) = f^{-1}\left(\frac{7}{4}x\right) = \frac{4}{7}\left(\frac{7}{4}x\right) = x;$

2. $(f \circ f^{-1})(x) = f(f^{-1}(x)) = f\left(\frac{4}{7}x\right) = \frac{7}{4}\left(\frac{4}{7}x\right) = x$

Objective: (5.1) *Show That Functions are Inverses of Each Other

21)



Objective: (5.1) Graph Inverse of Function from Graph

22) A
Objective: (5.1) Determine if Function is One–to–One by Graphing (Y/N)