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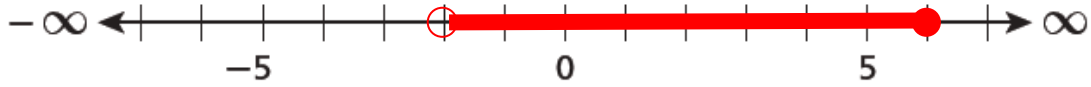
Intro to Functions Review

#1 – 2. Use interval notation to represent the set of numbers.

1.

2.



#3 – 4. Decide whether the following function is <u>continuous</u> or <u>discrete</u>. Choose a reasonable domain and range for the situation.

3. A framing store determines the price of wood based on the area *a* of the picture to be framed, plus an additional $3 for installation. The function *t(a)* describes the total cost of the framed picture, with wood and installation, based on the area of the picture.

4. A population of mice triples every 3 months. The function *p(t)* shows the number of rabbits after *t* months.

#5 – 7. Give the <u>equation</u>, basic <u>graph</u> and the <u>domain and range</u> for the following functions.

5. Quadratic function 6. Square root function 7. Absolute value function

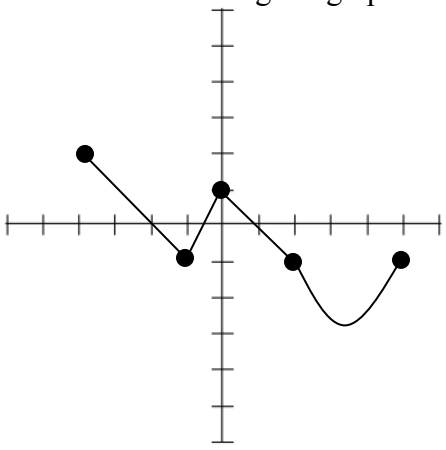
8. Write the equation that is the translation of $y = x^2$ right 4 unit and down 1 units.

9. Write the equation that is the traslation of y = |x| left 1 and up 11 units.

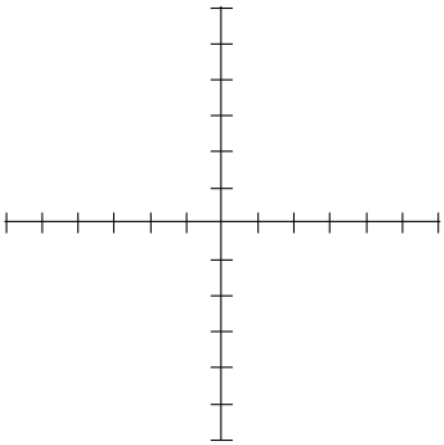
10. Describe the combined transformation for $t(x) = -3g(x - 1) + 1$, in the correct order.

11. Describe the combined transformation for $t(x) = \frac{1}{2}f(x) + 7$, in the correct order.

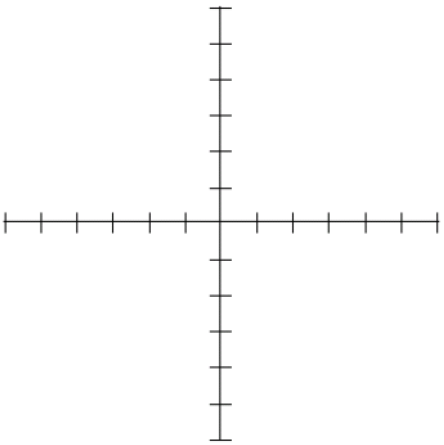
#12 – 13. Using the graph of f(x) on the left, graph the transformations.



12. $t(x) = f(x + 2) + 3$



13. $t(x) = f(x - 1) - 2$



#14 – 17. Evaluate the following expressions given the following functions: $f(x) = x^2 - 2$ and $g(x) = 2x + 3$.

14. $f(-2) - g(1)$ 15. $f(4) - 3g(-2)$

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16. f(g(2)) 17. g ○ f(-4)

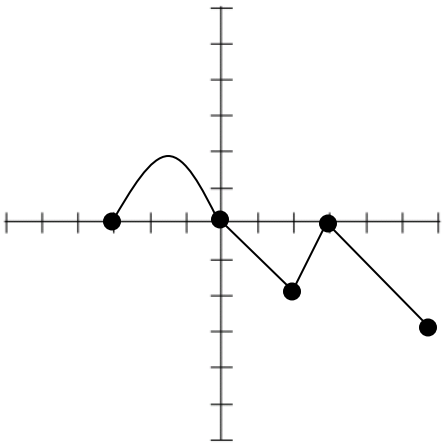
18. Given $f(x) = |x - 2|$, sketch the graph. Is *f(x)* a function? Is it continuous or discrete?

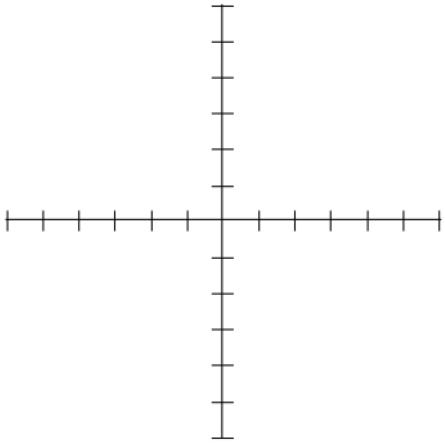
#19 – 20. Use any method to find the inverse of the function. Then use it to find $g^{-1}(3)$, $g^{-1}(0)$, and $g^{-1}(1)$.

19. $g(x) = \frac{1}{3}x - 2$ 20. $g(x) = 2x + 1$

Use the graphs below to answer #21 – 23.

21. Graph the inverse of the function *f(x)* graphed below. Is it a function?

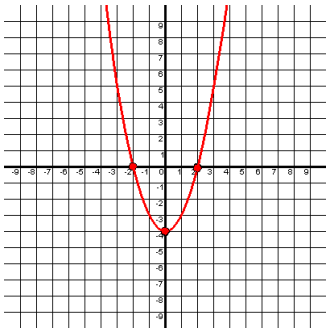




22. Evaluate *f(-3), f(0),* and *f(2).* 23. Evaluate $f^{-1}(-2)$ and $f^{-1}(-3)$.

#24 – 25. Which family of functions does the graph belong to? Find the domain and range, and write it in interval notation.

24.



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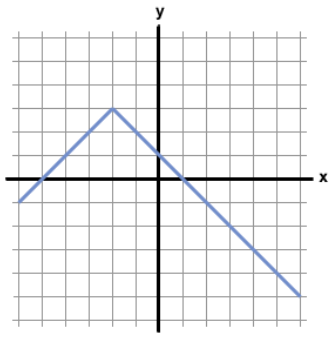

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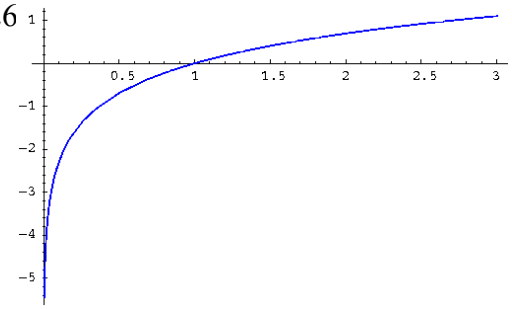

#27 – 32. Match each term to its definition.

a. Continuous
b. Function
c. Domain
d. Inverse
e. Discrete
f. Range

____ 27. A relation which has exactly one output for every input (one y for every x).
____ 28. A function whose graph that consists of separate, unconnected points.
____ 29. A function whose graph is unbroken.
____ 30. This "undoes" a function and represents it's "opposite".
____ 31. The set of all x-coordinates.
____ 32. The set of all y-coordinates.