MATH 1314

Test 3 Review

18 Multiple Choice Questions

1. Find the domain:

a. $f(x) = \frac{x}{7x - 14}$

b. $f(x) = \sqrt{5x - 1}$

c. $f(x) = \sqrt{5 - 4x}$

d. $f(x) = \frac{\sqrt{x+4}}{x-8}$

e. $f(x) = \frac{\sqrt{x+4}}{x+8}$

2.

a. Calculate $f(-2)$ if $f(x) = x^2 + x$

b. Calculate $f(-2)$ if

$$f(x) = \begin{cases} x^2 + 2x & x \leq -1 \\ x & x > -1 \end{cases}$$

c. Which point below is on the graph of f(x).

$$f(x) = \begin{cases} 2 & x < -1 \\ 4 & x = -1 \\ x^2 - 1 & x > -1 \end{cases}$$

$(-2,0)$ or $(1,0)$

3. Determine which of the following is on the graph.

a. $f(x) = -\frac{1}{2}x - 3$

$(-1,1)$

$(0,-3)$

b. $f(x) = 2x^2 - 3x - 1$

$(1,-2)$

$(-1,-1)$

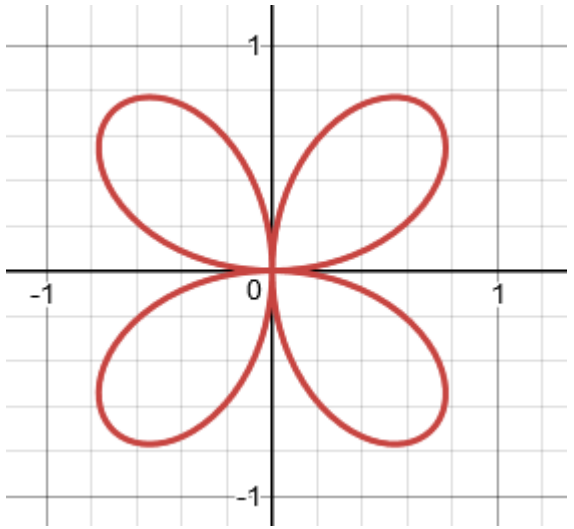
4. Determine if the following is a function:

a. $x^2 + y^2 = 25$

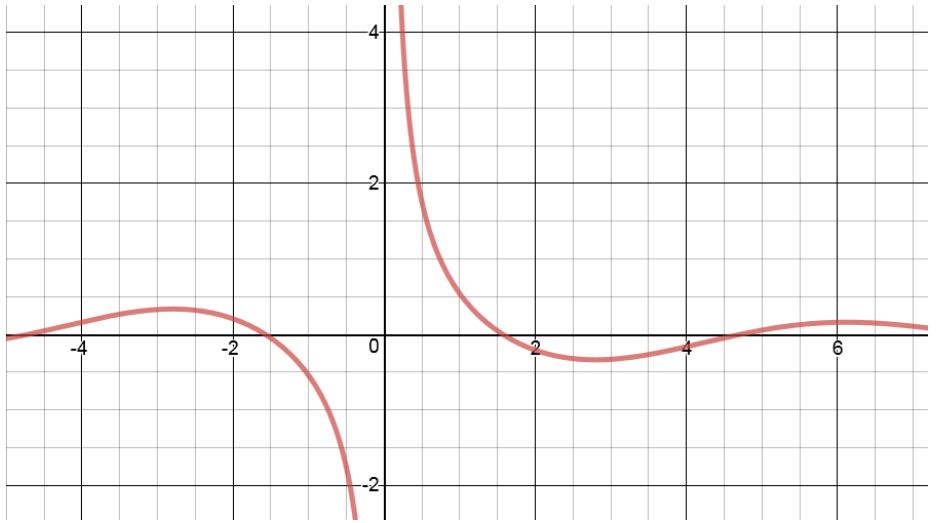
b. $y = x^3 + 2x^2 + 5x - 1$

c. $|y| = x$

d.



e.



5.

a. Sketch the graph $f(x) = -\sqrt{x-1}$

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b. Sketch the graph $f(x) = -(x+2)^2 - 1$ *

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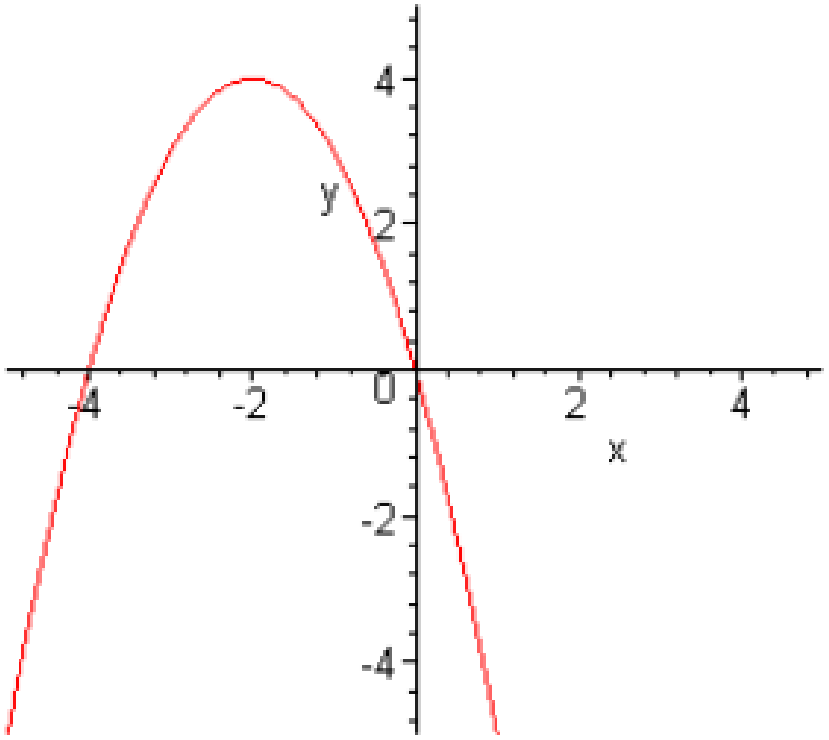
Answer Choice E for Questions 1 – 5

6.

a. What are the necessary transformations $f(x) = (x + 3)^3 - 2$

b. What is the function?



7.

a. Find the vertex $f(x) = 2x^2 - 4x + 21$

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b. Find the maximum or minimum value of the function
$f(x) = x^2 - 16x + 8$

9. Put in standard form $f(x) = -x^2 - 6x + 2$

*

10. If $f(x) = \sqrt{x+1}$ and $g(x) = x^2$, find $(g \circ f)(x)$ and $(f \circ g)(-1)$

11. If $f(x) = \frac{1}{2x}$ and $g(x) = x^2 - 1$, find $(f \circ g)(2)$.

12. If $f(x) = -2x + 2$ and $g(x) = x^2 + x$, find $(f \circ g)(2)$.

13. Find the inverse:

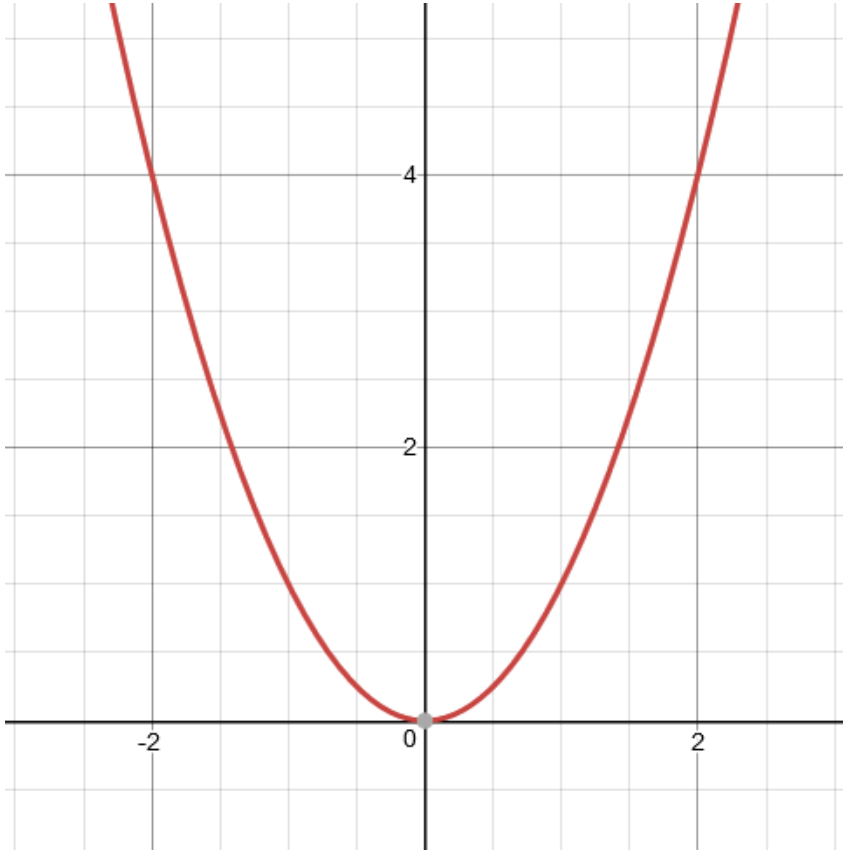
*

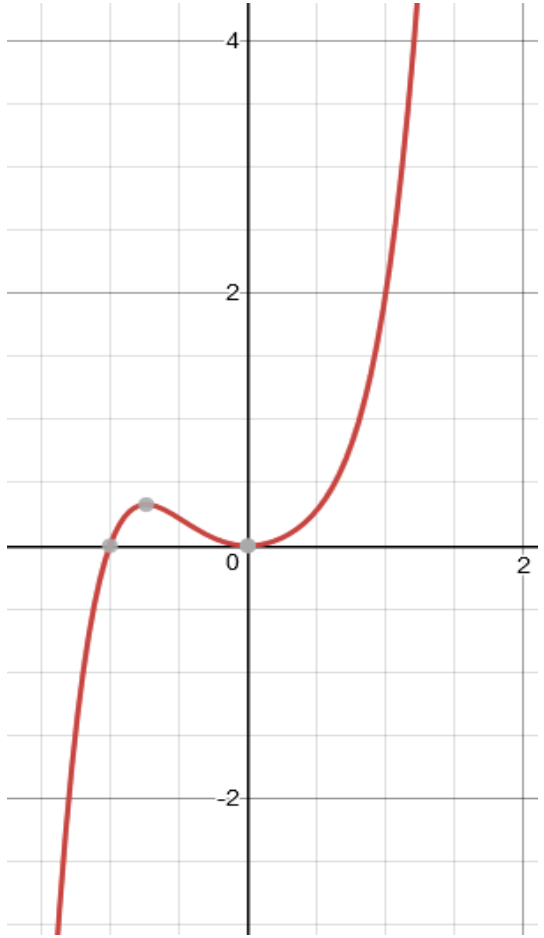
a. $f(x) = -2x + 2$

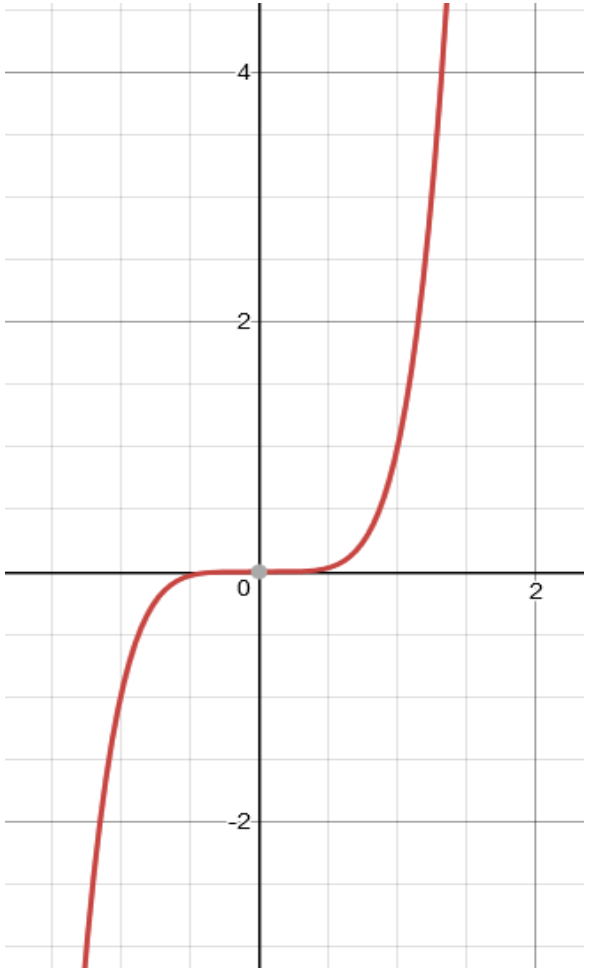
b. $f(x) = \dfrac{1}{x + 2}$

$$c.\, f(x) = \frac{3x + 2}{x - 1}$$

14. Classify the function as Even, Odd or Neither. Given the point (1, 1), what other point is guaranteed?







15. Evaluate the difference quotient for the function: $f(x) = 2x^2 + 8$ *

$$\frac{f(x+h) - f(x)}{h}$$

16. Given the following table, determine the value of $(f \circ g)(4)$.

x	f(x)	g(x)
0	3	2
1	-1	8
2	7	5
3	8	4
4	2	3

17. If f(x) and g(x) are inverse functions, and f(3) = 5, f(5) = 8, determine:

a. g(5)

b. f(g(2))

If f(x) = 3x + 5, find $f\left(\frac{3}{a+2}\right)$

Determine the difference quotient for $f(x) = 3x^2 + 6x - 8$ *