MATH 1314

Test 3 Review (Alternate)

18 Multiple Choice Questions

Find the following considering the function:

$$f(x) = \begin{cases} x^2 - 6x + 2 & x < -3 \\ 9 & x = -3 \\ x - 5 & x > -3 \end{cases}$$

f(-6)

f(-3)

f(5)

Find an additional x-value that can be plugged into $x^2 - 6x + 2$

Find an additional x-value that can be plugged into $x - 5$

Assuming that f(x) is an even function passing though the point (5, -3), which of the following must be true:

- ❑ f(x) is symmetric about the origin
- ❑ f(x) passes through the point (-5, -3)
- ❑ f(-x) = - f(x)
- ❑ the equation of f(x) must have only even exponents
- ❑ the equation of f(x) may have a constant term

Assuming that g(x) is an odd function passing though the point (-3, 8), which of the following must be true:

- ❑ g(x) is symmetric about the origin
- ❑ g(x) passes through the point (3, -8)
- ❑ g(-x) = - g(x)
- ❑ the equation of g(x) must have only odd exponents
- ❑ the equation of g(x) may have a constant term

Identify which of the following is a function:

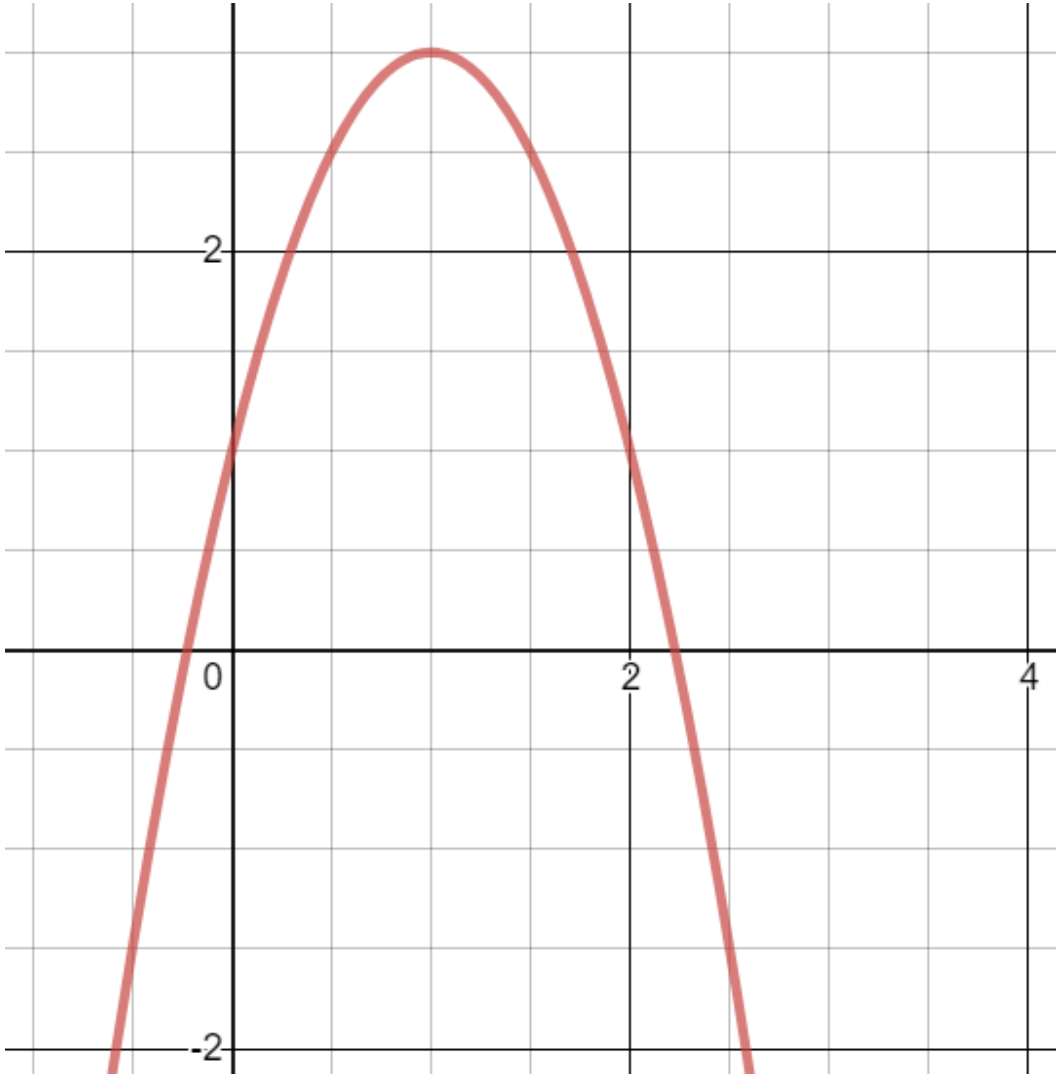
- $y = |x|$
- $y^2 + 5y + 6 = x^2 + 4x + 2$
- $x = |y|$
- $x^2 + 4x + 7y = 9$
- $x = 8$
- $y = -4$

Determine the domain of the functions:

$$f(x) = \frac{\sqrt{x-5}}{x+7}$$

$$g(x) = \frac{\sqrt{x+8}}{x-1}$$

Write the function of the following…



…in $f(x) = a(x - h)^2 + k$ form

…in $f(x) = ax^2 + bx + c$ form

Consider the following function: *

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

Determine the direction

Find the vertex

Write in standard form

Find the domain

Find the range

Determine the minimum/maximum value

If f(x) is a one-to-one function and $g(x) = f^{-1}(x)$ and f(-6) = 3 and f(9) = -6

Find g(-6)

Find $(f \circ g)(2)$

For the following function determine (and simplify) the difference quotient: *

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

$$f(x) = -2x^2 + 7x - 3$$

For the following functions f and g:

$$f(x) = \frac{4}{x-3}$$

$$g(x) = \frac{2}{5x}$$

Determine the value of g(f(6))

Find (f ∘ g)(x)

Determine the inverse function: *

$f(x) = 5x^2 - 4 \quad x \leq 0$

$g(x) = \dfrac{2x + 3}{x - 7}$

For the following transformed function: *

- State the parent function
- List the transformations that appear
- Sketch the function (showing all transformations)
- State and label the transformed key point.

$$f(x) = |-x + 2| - 3$$