

K ___/9 T ___/8 C ___/8 A ___/8

3U U2 (F23) - Intro to Functions: Test

Multiple Choice

K ___/6

Identify the choice that best completes the statement or answers the question. Circle the letter of your choice AND write the letter beside the question number.

- Which relation is not a function?
 - $\{(-13, -10), (-15, -12), (-11, -8), (-16, 4)\}$
 - $\{(8, 17), (5, 5), (8, -3), (4, -1)\}$
 - $\{(-14, -2), (-10, 6), (-1, 3), (10, 6)\}$
 - $\{(0, -2), (-4, 6), (4, 15), (12, 6)\}$
- Evaluate $f(x) = 7 - 9x$ for $f(-3)$.
 - 20
 - 6
 - 20
 - 34
- Which of the following is the inverse relation to the set of ordered pairs $\{(-7, 15), (0, -16), (5, 9), (17, -8)\}$?
 - $\{(7, -15), (0, 16), (-5, -9), (-17, 8)\}$
 - $\{(-7, -15), (0, 16), (5, -9), (17, 8)\}$
 - $\{(-15, 7), (16, 0), (-9, -5), (8, -17)\}$
 - $\{(15, -7), (-16, 0), (9, 5), (-8, 17)\}$
- Which of the following is the inverse to the function "Divide by 2, then add 21"?
 - Add 21, then divide by 2
 - Subtract 21, then multiply by 2
 - Divide by 21, then add 2
 - Multiply by 2, then subtract 21
- Which of the following is the parent function for $y = \sqrt{-\frac{1}{3}x}$?
 - $f(x) = x$
 - $f(x) = |x|$
 - $f(x) = x^3$
 - $f(x) = \sqrt{x}$
- Which of the following is a transformation that can be used to graph the function $f(x) = -7\sqrt{5(x+9)} + 12$?
 - Vertical translation 12 units up
 - Horizontal stretch by the factor 5
 - Reflection in the y-axis
 - Horizontal translation 9 units to the right

Written Solutions

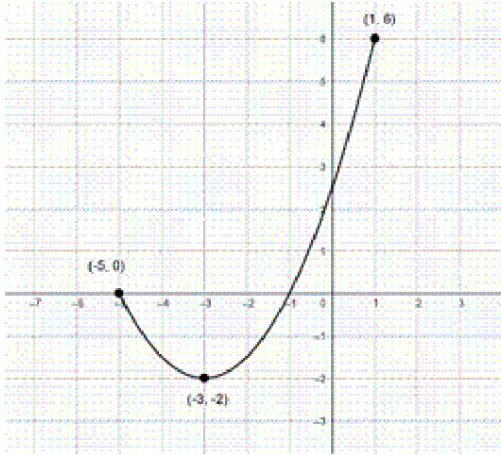
Provide solutions clearly showing your work. You can receive up to 2 Communication points for the presentation of your mathematics.

- State the definition of a function.

K ___/2

8. What are the domain and range of the sketch of a graph? Is the sketch a function? Why or why not?

T ___/2, C ___/2



9. Consider the function $g(x) = \sqrt{2x - 5}$. Determine

T ___/2, T ___/2

a) $g(-2a)$.

b) x , if $g(x) = 5$

10. Given the function $f(x) = |x|$, write the **equation** for a transformed function, $g(x)$, after the following transformations: (No sketch required - just the equation)

T ___/2

horizontal stretch by the factor $\frac{1}{3}$,

vertical stretch by the factor 2

Vertical Flip (around the x -axis)

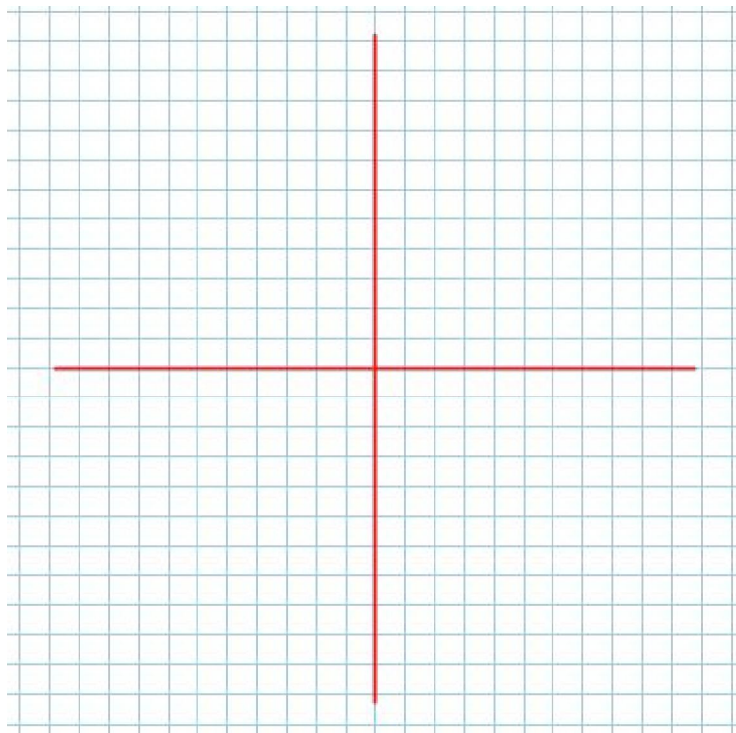
Shift 3 units right and 4 units down

11. Given the function in the table below, complete the table stating:

K ___/1, **C** ___/3, **A** ___/3

- the parent function, and call it $f(x)$
- all transformations applied to the parent function
- and sketch the graph of the parent function and $g(x)$ on the same set of axes.
- don't forget domain and range of the transformed function $g(x)$

Function	Standard Form $f(x) = a f(k(x-d)) + c$	Vertical Stretch a	Horizontal Stretch $1/k$	Horizontal Shift d	Vertical Shift c
$g(x) = -2\sqrt{-x+3} + 1$					
Domain		Range			
Table Of Values	Parent Function:		Transformed Function		



12. Consider the relation that contains the points $\{(-16, -10), (-14, -8), (-11, -3), (-7, 4), (-1, 8), (0,3), (1,5), (2,8)\}$. A ____/3

a) Is the relation a function? Why or why not?

b) What is the domain of the **inverse relation**?

c) Is the inverse relation a function? Why or why not?

13. Determine the equation for the inverse of the function $f(x) = -\frac{1}{2}(3x + 9)^2 + 4$. You may use either “brute force” or transformations to obtain your equation. A ____/2

14. How is the course going for you? How can I do a better job of helping you learn this material? C ____/1