Name Solis

A∞Ω
MATH@TD

11U - U2: Intro to Functions - Practice Quiz

Multiple Choice
Identify the choice that best completes the statement or answers the question. Circle the letter of your choice.

1. Evaluate $f(x) = -4x^2 + 7$ for $f(1) + f(-2)$.
   a. –6
   b. 3
   c. 26
   d. 94

$f(1) = -4(1)^2 + 7 = 3$
$f(-2) = -4(2)^2 + 7 = -9$
$\therefore f(1) + f(-2) = 3 + (-9) = -6$

A

2. Debra thought of a number. She squared the number and added the original number to the result. She then divided the sum by 4. Which function represents Debra's number?
   a. $f(x) = x^2 + \frac{x}{4}$
   b. $f(x) = \frac{2x + x}{4}$
   c. $f(x) = \frac{x^2 + x}{4}$
   d. $f(x) = \frac{2x}{4} + x$

x, x^2, $x^2 + x$, $\frac{x^2+x}{4}$

C

the entire thing

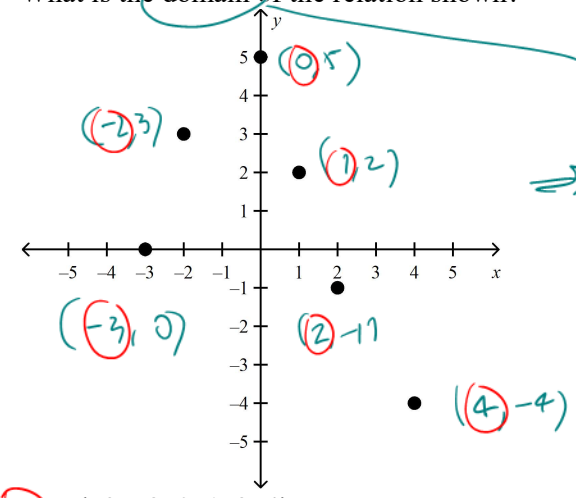
3. Which relation is not a function?
   a. {(–13, –10), (–15, –12), (–11, –8), (–16, 4)}
   b. {(8, 17), (5, 5), (8, –3), (4, –1)}
   c. {(–14, –2), (–10, 6), (–1, 3), (10, 6)}
   d. {(0, –2), (–4, 6), (4, 15), (12, 6)}

No x-value can have two y-values

B

the domain value $x = 8$ has been assigned two y-values ∴ NOT a f=

4. What is the domain of the relation shown?



all of the x-values

⇒ this is a discrete f=
⇒ we just list the x-values

{–3, –2, 0, 1, 2, 4}

A

   a. {–3, –2, 0, 1, 2, 4}
   b. $\{-3 \le x \le 4\}$
   c. $\{x \in \mathbf{I}\}$
   d. {–4, –1, 0, 2, 3, 5}

5. Which of the following is NOT a transformation that can be used to graph the function $f(x) = -6(x-4)^2 + 2$ from the parent function?

B

a. Vertical translation 2 units up TRUE

b. Horizontal stretch by a factor of $\frac{1}{6}$ there is no horizontal stretch ✗

c. Reflection in the x-axis True

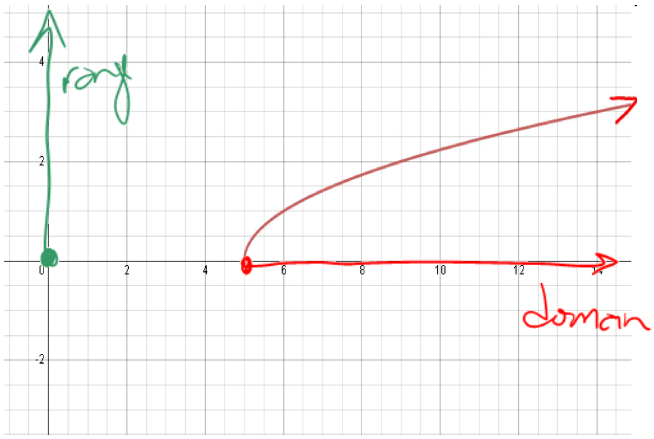
d. Horizontal translation 4 units to the right true

vertical

Written Solutions

Provide solutions clearly showing your work.

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



NOT discrete, so we use "inequalities" to describe domain + range

$D_f = \{x \in \mathbb{R} \mid x \geq 5\}$

$R_f = \{f(x) \in \mathbb{R} \mid f(x) \geq 0\}$

7. Consider the function $f(x) = 3x - 8$. Determine

a) $f(3k)$.

b) x, if $f(x) = 4$

$3k$ in for 'x'

a) $f(3k) = 3(3k) - 8$

$= 9k - 8$

(can't go further because we don't know 'k')

b) $4 = 3x - 8$ (+8 both sides)

$\Rightarrow 12 = 3x$ (÷3 both sides)

$\therefore x = 4$