Practice quiz on Types of Functions

PUNTOS TOTALES DE 6

1. Suppose that $A = \{1, 2, 10\}$ and $B = \{4, 8, 40\}$. Which of the following formulae do ***not*** define a function $f : A \to B$? **0 / 1 puntos**

- $f(1) = 4, f(2) = 40$, and $f(10) = 8$.
- $f(1) = 5, f(2) = 8$, and $f(10) = 40$.
- $f(1) = 4, f(2) = 4$, and $f(10) = 4$.
- $f(a) = 4a$, for each $a \in A$

Incorrecto

A function $f : A \to B$ is a rule which assigns an element $f(a) \in B$ to each $a \in A$. This is a perfectly fine rule. Don't be tricked by the fact that all of the elements in A get transformed into the same element in B. Nothing in the definition of function forbids that.

2. Suppose that A contains every person in the VBS study (see the second video in the course if you're confused here!). Suppose that $Y = \{+, -\}$ and $Z = \{H, S\}$ **1 / 1 puntos**

Suppose that $T : A \to Y$ is the function which gives $T(a) = +$ if person a tests positive and $T(a) = -$ if they test negative.

Suppose that $D : A \to Z$ is the function which gives $D(a) = H$ does not actually have VBS and $D(a) = S$ if the person actually has VBS.

Which of the following must be true of person a if we have a false positive?

- $T(a) = +$ and $D(a) = S$
- $T(a) = +$ and $D(a) = H$
- $T(a) = -$ and $D(a) = S$
- $T(a) = -$ and $D(a) = H$

3. Consider the function $g : \mathbb{R} \to \mathbb{R}$ defined by $g(x) = x^2 - 1$. Which of the following points are *not* on the graph of g? 1 / 1 puntos

- ○ $(1, 0)$
- ○ $(0, -1)$
- ○ $(-1, 0)$
- ◉ $(2, -1)$

✓ **Correcto**

Recall that the graph of g consists of all points (x, y) such that $y = g(x)$. Here $g(2) = 3 \neq -1$, so the point $(2, -1)$ is \emph{not} on the graph of g.

4. Let the point $A = (2, 4)$. Which of the following graphs does *not* contain the point A? 1 / 1 puntos

- ○ The graph of $s(x) = x^2$
- ○ The graph of $f(x) = 2x$
- ◉ The graph of $h(x) = x - 1$
- ○ The graph of $g(x) = x + 2$

5. Suppose that $h(x) = -3x + 4$. Which of the following statements is true? 1 / 1 puntos

- ○ All statements are correct
- ◉ h is a strictly decreasing function
- ○ h is neither a strictly increasing function nor a strictly decreasing function.
- ○ h is a strictly increasing function

6. Suppose that $f : \mathbb{R} \to \mathbb{R}$ is a strictly increasing function, with $f(3) = 15$ 1 / 1 puntos

Which of the following is a possible value for $f(3.7)$?

- ◉ 17
- ○ -3
- ○ 3
- ○ 14.7