Math 48A, Lesson 1 Quiz: Test Your Memory

In this class, we will focus on our energy on learning to describe different classes of functions known as elementary functions. The foundations you set in this class will support you for the rest of your career in mathematics. Consider the following 8 functions:

A. $f(x) = 3 + 2^x$

B. $f(x) = 2x^5 - 4$

C. $f(x) = 2 \cdot |1 - 2x| - 4$

D. $f(x) = \dfrac{8}{x^2 - 4}$

E. $f(x) = 2 + \log_{10}(x - 1)$

F. $f(x) = 3 + \sqrt[2]{x - 1}$

G. $f(x) = 3x - 2$

H. $f(x) = x^2 + 6x + 9$

Using the work you did on your Lesson 1 Handout, figure out the names for each of the functions listed above in options A - H. Next to each choice, justify your answer. We'll solve the first problem together as a team.

1. Linear function___**G.**___

We can transform linear functions into the form
$$f(x) = mx + b$$
with slope m and y-intercept b.

2. Quadratic function___**H.**___
(Hint: in Spanish, the word Cuadro means square)

To identify quadratic functions, we look for an x^2 term (and no higher powers). We can transform quadratic functions into the form $f(x) = a \cdot x^2 + bx + c$

3. Absolute value function___**C.**___

To identify absolute value functions, we look for the absolute value bars.

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4. Rational function_____D._____
(aka reciprocal function)

Remember that the word ratio means that we divide one math expression by another math expression. Rational functions are ratios of power functions.

5. Power function_____B._____

A power function features a variable input x in the base and a constant power n in the superscript.

6. Root function_____F._____

Root functions include an expression featuring the root symbol in the form $\sqrt[n]{}$, known as the nth root.

7. Exponential function_____A._____

Exponential functions feature a constant, positive real number in the base and a variable input x in the exponent (written as a superscript on constant base).

8. Logarithmic function_____E._____

Logarithmic functions include a logarithmic expression in the form $\log_a(\ )$ (read as log base a of some input (the input is inside the parenthesis.