

M3Y & M3Z - Advanced Placement Precalculus Functions & Equations - Definitions (REVIEW)

September 18, 2023

Dear Students,

Please carefully review the notes from class on Monday and Tuesday (September 18-19).

Once you finish studying, proceed by answering the following problems. Please remember that this Wednesday (Sept. 20) we will have an assessment on these topics.

1. Which of the followings are functions, where $y = f(x)$? Explain each of your answers.

- $y + 3x = 5 + x$
- $x^3 + 2x^2 - y = 4$
- $x^2 + y^2 = 25$
- $9x - y^2 = 81$

2. Find the *domain* of each of the following functions:

- $f(x) = x^3 + 1$
- $g(x) = \sqrt{x - 2}$
- $h(x) = \log(2x + 1)$
- $k(x) = \frac{x-3}{x-1}$
- $l(x) = e^{2x-1}$
- $m(x) = \sin \frac{x}{2}$

3. Write a function $f(x)$ that its domain includes all real numbers (\mathbb{R}) except the values $-2, 0$, and 6 .
4. If $h(x) = x^2 + 2x - 5$, evaluate each of the following:
- $h(x - 1)$
 - $h(2x + 1)$
 - $h(x + k)$
5. Let z_1 and z_2 represent the two *zeros* of the function $f(x) = x^2 - 6x + 8$. Let $g(x) = x^3 - 3x + 10$. Calculate $g(z_1) + g(z_2)$.

Your work should be uploaded electronically and not turned in by email or on paper.

Mr. Artopoulos & Mr. Demopoulos