

PREAP PRECALCULUS SUMMER ASSIGNMENT 2019

BERNARDO/DOSANJOS

Directions: Read each question carefully. Show all work in order to receive credit for each question. Highlight or place a box around your final answer.

Due Date: Thursday September 5, 2019

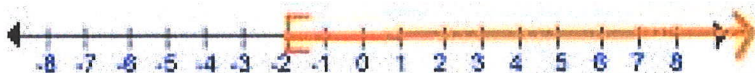
Expected time to complete: 2 hours

Purpose: This summer assignment allows you to understand and practice the prerequisite skills for Pre AP Pre-Calculus

For numbers 1-4, use interval notation to describe the interval of real numbers.

1. x is greater than 3 and less than 7

2.



2. A function has domain $-3 < x \leq 5$

3. The domain of a function is all real numbers except for zero. Write the domain of this function as two intervals.

4. Identify the quadrant in which the point $(-5, -9)$ is located.

5. Simplify the expression. Assume that the variables in the denominator are non-zero. $\frac{(x^{-3}y^3)^{-4}}{(y^3x^{-5})^{-5}}$

6. Find the slope of the line through the pair of points $(-7, -4)$ and $(-7, -2)$.

7. Find the value of x so that the line through the pair of points $(x, 2)$ and $(3, 10)$ has a slope of 4.

8. Find a point-slope equation for the line through the point $(-3, 8)$ with given slope of -3 . Make sure your answer is in point-slope form.

For numbers 10- 12, factor the denominator to find the vertical asymptotes of the given function.

9. $f(x) = \frac{5}{x^2 - 16}$

10. $f(x) = \frac{1}{x^2 - 5x + 6}$

11. $y = \frac{2}{3x^2 + 11x - 4}$

12. Find the zeros by factoring $x^3 - x^2 - 6x = 0$

13. Find the zeros of the function using the quadratic formula. Then identify whether each zero is rational or irrational. $y = 5x^2 + 2x - 1$

14. Find all real zeros using the rational roots theorem. (Hint: There are **3** solutions).

$$f(x) = x^3 + x^2 - 8x - 6$$

15. The length of a rectangle is three inches more than the width. The area of the rectangle is 154 inches. Write a set of equations to represent this problem. Solve to find the width of the rectangle.

16. Combine fractions and reduce: $\frac{x}{2x+1} + \frac{2}{x-3}$

For numbers 18-23, solve the given equation. If a specific method is to be used, it is written in parenthesis.

17. (Quadratic Formula) $-7x^2 - 3x - 2 = 0$

18. (Factoring) $6x^2 - 29x - 5 = 0$

19. $\frac{x+4}{5} - \frac{x-5}{4} = 3$

20. (Completing the Square) $x^2 = 7 - 8x$

21. $\frac{2}{x-1} + x = 5$

22. $\frac{1}{5}(10x - 25) = \frac{1}{2}(10x - 4)$

23. Write the exponential function $y = a \cdot b^x$ given the points (0, 12) and (1, 4). *Hint: Find a and b.*

24. Evaluate the logarithms. Do not use a calculator. Please provide EXACT values.

a. $\log_5 \sqrt[3]{25}$

b. $\log_2 32$