

Course Number (when applicable)
MA 320 (Precalculus) MA 340 (Honors Precalculus w Analysis) MA 355 (Honors Precalculus with Differential Calculus)
Course Title
Precalculus/H. Precalculus with Analysis/H. Precalculus with Differential Calculus
Name of Assignment (title of book(s), Author, Edition, and ISBN (when applicable))
Precalculus: Graphical, Numerical, Algebraic, Demana et. al, 7th edition, ISBN 0-13-227650-X
Expectations/Instructions for Student When Completing Assignment
Read carefully and answer what is asked. Use your calculator, but write exact answers whenever possible, making sure to simplify answers. Include your work as well as the final solution. If you have forgotten any topic, you may use Khan Academy online to refresh your memory.
One Essential Question for Assignment
How can you be an effective and resourceful problem solver?
One Enduring Understanding for Assignment
A problem solver understands what has to be done, knows why the process was appropriate, and can support it with reasons and evidence, given that the ability to solve problems is the heart of mathematics.
Parent Role and Expectations
Parents should serve as a supportive resource by checking in with their daughter to make sure the packet has been completed by the start of school.
Estimated Time Requirement
Varied by student pace and knowledge.

PRECALCULUS

Please use your Algebra II textbook and notes to complete the following packet by the first day of class.

1. The equation $h(t) = 80t - 16t^2$ models the height in feet reached during t seconds by an object propelled straight up from the ground. Find the maximum height of the object and the time it takes t reach the maximum height.

2. Sketch the graph of the polynomial function $y = x^3 - 2x^2 - 3x + 6$.
Include: x-intercepts, y-intercepts, relative min and max, domain and range.

3. Simplify:

$$\sqrt[3]{-125a^7}$$

$$\frac{5}{3+2\sqrt{7}}$$

$$\sqrt[4]{\frac{5}{3xy^2}}$$

$$\frac{x^{\frac{2}{3}}y^{-\frac{1}{4}}}{x^{\frac{1}{2}}y^{-\frac{1}{2}}}$$

4. Let $f(x) = x^2 - 1$ and $g(x) = x - 1$.

Find $\frac{g}{f}(x)$ and state any restrictions on the domain.

Find $g \circ f(3)$

5. Given the following function: $y = -\sqrt{x+2}$

- Graph this function and state its domain and range.
 - Find the inverse of the function.
 - Graph the inverse.
 - State the domain and range of the inverse function
6. Evaluate each logarithm:

a. $\log_x 8 = 3$

b. $\ln e^x$

c. $\frac{1}{2} \log_5 1 - 2 \log_5 5$

d. $\log_x 1$

7. Sketch the graph of the function (remember to include vertical and horizontal asymptotes, holes, 2 points, domain and range):

$$f(x) = \frac{x}{x^2 - x}$$

8. Simplify each expression. State any restrictions on the variable:

a. $\frac{5x}{x^2 - x - 6} - \frac{4}{x^2 + 4x + 4}$

b. $\frac{4x^2 - 4}{9(x+1)^2} \cdot \frac{3x+3}{2x-2}$

9. Solve for x : $\frac{x+a}{b} + \frac{1}{a} = x$

10. Solve for r : $A = p(1 + rt)$