Review: Calculus I and Algebra

Fundamentals of Calculus II

Algebra

1. Identify the vertical and horizontal asymptotes of $\dfrac{1}{x-2} + 6$.

2. What's the domain of $\dfrac{2x}{3-x}$?

3. Solve $\log_2 8 = x$

4. For $f(x) = x^2 + 3$ and $g(x) = x + 2$, find all solutions to $f(g(x)) = 12$.

Calculus I

5. Evaluate $\displaystyle\lim_{x \to 2} \dfrac{21x + 2}{7x - 4}$.

6. State the limit definition of a derivative.
   Explain the definition in terms of a tangent line.

7. Find the derivative of derivative of $\dfrac{x^3}{\sin(5x)}$.

8. Find y' for $x^3 + y^3 = 4$.