## Math 2A Worksheet: 2.5 Continuity

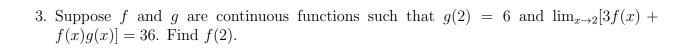
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1. Find all values of x at which the following function is discontinuous.

$$f(x) = \begin{cases} 2^x & \text{if } x \le 1\\ 3 - x & \text{if } 1 < x \le 4\\ \sqrt{x} & \text{if } x > 4 \end{cases}$$

2. What value of c makes the below function continuous?

$$g(x) = \begin{cases} cx^2 + 2x & \text{if } x < 3\\ x^3 + cx & \text{if } x \ge 3 \end{cases}$$



4. Evaluate the limit 
$$\lim_{x\to\pi} \sin(x+\sin x)$$

5. Use the Intermediate Value Theorem to show that  $\sin x = x^2 - x$  has a root in the interval (1,2).