AP Calculus AB
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Activity 0817
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Name:

Problem 1. Let

$$f(x) = x^3 - x \quad \text{and} \quad g(x) = x^3 + 3x^2 + 2x + 6.$$

(a) Solve $f(x) = 0$ by factoring.

(b) Sketch the graph of f.

(c) Compute $f(x + 1)$.

Problem 1 (continued)**.** Let

$$f(x) = x^3 - x \quad \text{and} \quad g(x) = x^3 + 3x^2 + 2x + 6.$$

(d) Describe how the graph of g can be obtained from the graph of f by transformations.

(e) Sketch the graph of $g(x)$ (including the x-intercept), using parts **(b)** and **(d)**.