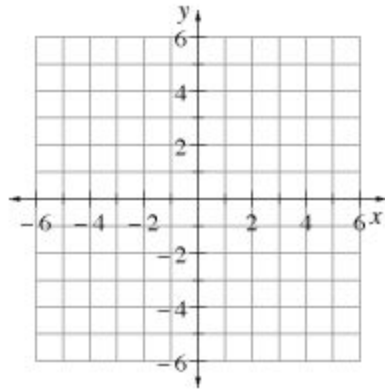# AP Calculus Practice Test Ch. 1

1. Graph $g(x) = \begin{cases} \sqrt{x} & \text{for } x < 3 \\ 3 - x & \text{for } x \geq 3 \end{cases}$ State the domain and range.
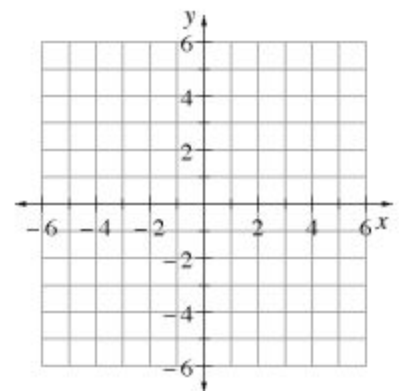

3. Let $f(x) = 3x^2 + 2$ and $g(x) = x - 3$. Find $f(g(x))$ and $g(f(x))$. Are the resulting functions even, odd, or neither?

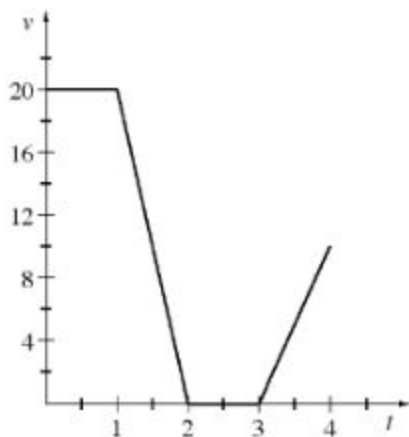4. Given $f(x) = 2x^2 + 7$ and $g(x) = \frac{x-5}{x+3}$ find $f^{-1}(x)$ and $g^{-1}(x)$.

5. State where the given function has any horizontal or vertical asymptotes and/or holes. Then sketch a graph.
    $f(x) = \frac{4x-12}{x^2+3x-18}$

7. Find the end behavior of function $s(x)$ for $f(x) = \frac{21x^2+48x+12}{7x+2}$

8. Write a story that could represent the following velocity vs. time graph.

9. Find all points where the graphs of $f(x) = \frac{1}{3}x^2 + x - 2$ and $g(x) = -\frac{1}{3}x + 1$ intersect.

10. Sketch a function with all of the following properties:

- Hole at (2,2)
- Asymptote of $y = 1$
- Domain is All Real Numbers
- Range is (1,7)