1. Find the derivatives of the following functions.
   a) \( f(x) = (6x^3 - x)(10 - 20x) \)
   b) \( f(x) = \frac{3x + 9}{2 - x} \)
   c) \( f(x) = a^x \)
   d) \( f(x) = x^x \)

2. Find \( f'(x) \) for \( f(x) = |x|1 \). Here \(|x|1\) means the absolute value of \( x \).

3. Graph \(|x| + |y| = 1\).

4. Find the equation of tangent line to \( f(x) = 4x - 8\sqrt{x} \) at \( x = 16 \).

5. Graph \( x^2 + 2x + y^2 = 8y + 8 = 0 \).

6. Solve \( \log_{10} x + \log_{10} (x^2) = 1 \)

7. A 15-foot ladder is resting against the wall. The bottom is initially 10 feet away from the wall and is being pushed towards the wall at the rate of 0.25 ft/sec. How fast is the top of the ladder moving up the wall 12 seconds after we start pushing?