1. Find the areas of the surfaces formed by rotating the following curves about the \( x \)-axis.

   (a) \( 9x = y^2 + 18 \), \( 2 \leq x \leq 6 \).

   (b) \( y = \sqrt{x} \), \( 4 \leq x \leq 9 \).

   (c) \( x = 1 + 2y^2 \), \( 1 \leq y \leq 2 \).

2. Find the areas of the surfaces formed by rotating the following curves about the \( y \)-axis.

   (a) \( y = \sqrt{x} \), \( 1 \leq y \leq 2 \).

   (b) \( y = 1 - x^2 \), \( 0 \leq x \leq 1 \).

   (c) \( x = \sqrt{a^2 - y^2} \), \( 0 \leq y \leq a/2 \).

3. Suppose that the region \( \mathcal{R} = \{(x,y) \mid x \geq 1, \ 0 \leq y \leq 1/x^2\} \) is rotated about the \( x \)-axis to form a solid. Find and evaluate improper integrals that describe the volume and surface area of the resulting solid (if they converge).