## Practice Quiz 7 (L17-L19)

1. Find the dimensions of a right circular cylinder of maximum volume that can be inscribed in a sphere of radius 10 cm. What is the maximum volume?

2. What is the general antiderivative of $\frac{1}{x} - \ln(2) + e^{-x}$.

3. Let $f(x) = \frac{x^2 - 3}{x - 2}$. Find the intervals where the function $f(x)$ is increasing, decreasing, concave up, and concave down. Find the critical points and inflection points of $f$, and any horizontal or vertical asymptotes. Sketch $y = f(x)$.