

Name: _____

Calculus Your Try Problems for Chapter 4

4a) Find the vertex of the parabola $y = \frac{1}{3}x^2 - 5x + 12$.

4b) Find all maximums, minimums and points of inflection of $y = x^4 - 4x^2 + 2$.

4c) Find the maximum value of $y = \ln x^2 - \frac{x}{5}$.

4d) The position of a mass on a spring is given by $y = \sin(\pi t)$. Find the position, velocity and acceleration of the mass at $t=0.8$ seconds.

4e) Find the maximum and points of inflection of $y = e^{-2(x+1)^2}$.

4f) If you can sell 10,000 widgets at \$13.50 per widget, and 20,000 widgets at \$10.00, how many widgets should you make, and what should you sell them for?

4g) A rectangular box needs to have a volume of $10,000\text{cm}^3$. The top and the bottom must be square and they use twice as much cardboard as the sides. What dimensions enclose the volume with the least cardboard?