CALCULUS – Curve Sketching Worksheet

For each function, perform the first and second derivative test, then graph the function.

1) $y = -\dfrac{x^3}{3} + x^2$

2) $y = -\dfrac{x^4}{4} + x^2 - 1$

Use the given information to graph the function.
3.

x-intercepts at $x = -6, 4$

y-intercept at $y = \dfrac{12\sqrt[3]{2}}{5}$

Critical points at: $x = 0, 4$

Increasing: $(-\infty, 0), (4, \infty)$

Decreasing: $(0, 4)$

Inflection point at: $x = 6$

Concave up: $(6, \infty)$

Concave down: $(-\infty, 4), (4, 6)$

Relative minimum: $(4, 0)$

Relative maximum: $\left(0, \dfrac{12\sqrt[3]{2}}{5}\right)$

x