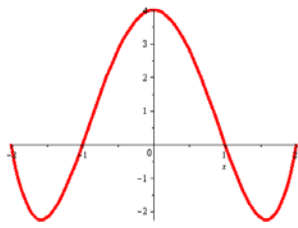


Quiz

1. Consider the graph of a function $f(x)$ shown below and determine whether the given quantity is approximately positive, negative, or zero:



- a) $f'(0)$
 b) $f''(0)$
 c) $\int_{-1}^2 f(x) dx$

2. Find the following integrals:

a) $\int 3x^8 + 6e^x + \frac{7}{x} - \frac{8}{x^3} - 4\sqrt[3]{x^2} dx$

b) $\int_1^e (x^2 - \frac{1}{x}) dx$

3. Find the area under the graph $y = 2x - x^2 + 8$ from $x = -2$ to $x = 1$. Make sure to **sketch the function and shade** the region whose area you are looking for
4. Find the area between $f(x) = x^2 - 1$ and $g(x) = x + 1$. Make sure to **sketch the functions and shade** the region whose area you are looking for).
5. Suppose the marginal cost for producing q number of widgets is $C'(q) = 3e^q - 9q^2 - 300$, and the fixed cost is \$103. Find the formula for the cost function and find the cost of producing 10 items.