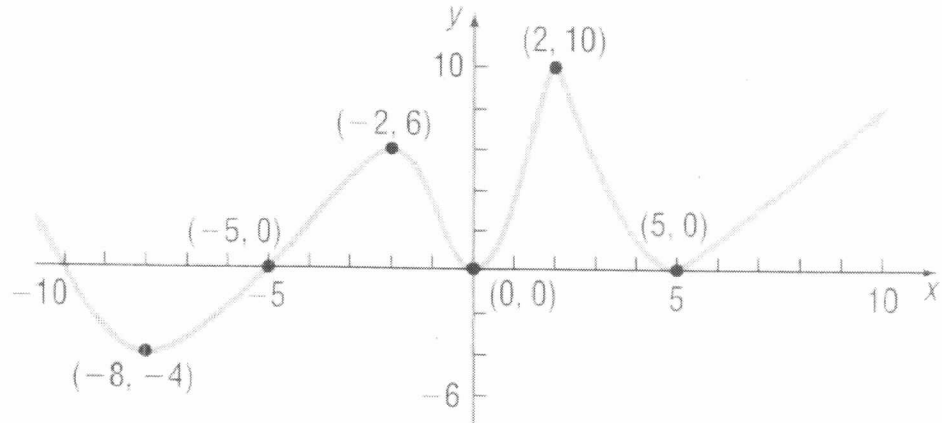


Student name: Solution

There are 3 problems – see the other side!

1. If this is the graph of
- $f(x)$
- :

List the interval(s) on which f is increasing.

a.

$$(-8, -2)$$

$$(0, 2)$$

$$(5, \infty)$$

List the numbers at which f has a local maximum. What are these local maxima?

b.

$$x = -2 \quad f(x) = 6$$

$$x = 2 \quad f(x) = 10$$

2. Find the average rate of change of $f(x) = -2x^2 + 4$ from 0 to 2.

$$\begin{aligned}\frac{f(2) - f(0)}{2 - 0} &= \frac{(-2 \cdot 2^2 + 4) - (-2 \cdot 0^2 + 4)}{2} \\ &= \frac{(-8 + 4) - (0 + 4)}{2} \\ &= -\frac{8}{2} \\ &= -4\end{aligned}$$

3. Determine algebraically whether the function $f(x) = \frac{1}{x^2}$ is even, odd, or neither.

$$\text{Test: } f(-x) = \frac{1}{(-x)^2} = \frac{1}{x^2} = f(x)$$

So $f(x)$ is even

$$\underline{\underline{\text{If}} } f(-x) = -f(x)$$

$f(x)$ would be odd