

Determine the average rate of change for $f(x) = 6x^2 - 8$ when x changes from 8 to 8.4 .

$$f(x) = 6x^2 - 8$$

$$\begin{aligned} \text{Let } a &= 8 \\ b &= 8.4 \end{aligned}$$

$$f(8) = 376$$

$$f(8.4) = 415.36$$

$$\text{Average rate of change} = \frac{f(b) - f(a)}{b - a}$$

$$\text{Av. rate of change} = \frac{f(8.4) - f(8)}{0.4}$$

$$= \frac{415.36 - 376}{0.4}$$

$$= \frac{39.36}{0.4} = 98.4$$