Mean Value Theorem for Integrals

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If f is continuous on [a,b] , then at some point "c" in [a,b]

$$f(c) = \frac{1}{b - a}\int_a^b (f(x))\,dx$$

$$\text{height} = \left(\frac{1}{\text{width}}\right)(\text{area})$$

***Recall Mean Value Theorem $f'(c) = \dfrac{f(b) - f(a)}{b - a}$

That is, there is a rectangle whose area is precisely equal to the area of the region under the curve.

Using the MVT for integrals, find the value of "c".

1. $f(x) = \dfrac{4}{x^2}$ for [1,4]

2. $f(x) = \cos(x)$ over $\left[\dfrac{-\pi}{3}, \dfrac{\pi}{3}\right]$