

AP Calculus
Day 80 Warm Up

Name _____

Date _____

1. Use the Mean Value Theorem for Integrals to find at least one value of c for $f(x) = x^2 - 4x - 3$ on the closed interval $[1, 3]$. Then use that value of c to find the average value of $f(x)$ on $[1, 3]$.

a) $-\frac{40}{3}$

b) $-\frac{20}{3}$

c) $-\frac{10}{3}$

d) $-\frac{10}{6}$

e) -6

2. Find the average value of x^2 over the interval $a \leq x \leq b$.

a) $b^2 - a^2$

b) $\frac{b^2 + ab + a^2}{3}$

c) $b^2 + a^2$

d) $b^2 - ab + a^2$

e) $b + a$

3. Find the average value of $f(x) = \cos x$ on the interval $[\frac{\pi}{4}, \frac{\pi}{2}]$.

a) $\frac{2\sqrt{2}}{\pi}$

b) $\frac{\sqrt{2}}{2}$

c) $\frac{1}{\pi}$

d) $\frac{\sqrt{2}}{\pi}$

e) $\frac{2(2 - \sqrt{2})}{\pi}$

4. Find the average value of $f(x) = \sin^2 2x + \ln x^3$ on the closed interval $[3, 6]$.

a) 1.089

b) 2.571

c) 3.058

d) 3.814

e) 4.970