

## Assignment-Average value theorem

Date \_\_\_\_\_

**For each problem, find the average value of the function over the given interval.**

1)  $f(x) = 2x + 2; [-4, 1]$

2)  $f(x) = -x^2 - 2x - 2; [-2, 1]$

3)  $f(x) = e^x; [-1, 1]$

4)  $f(x) = -4x^{\frac{1}{2}}; [0, 2]$

5)  $f(x) = -x^2 + 4x - 1; [0, 4]$

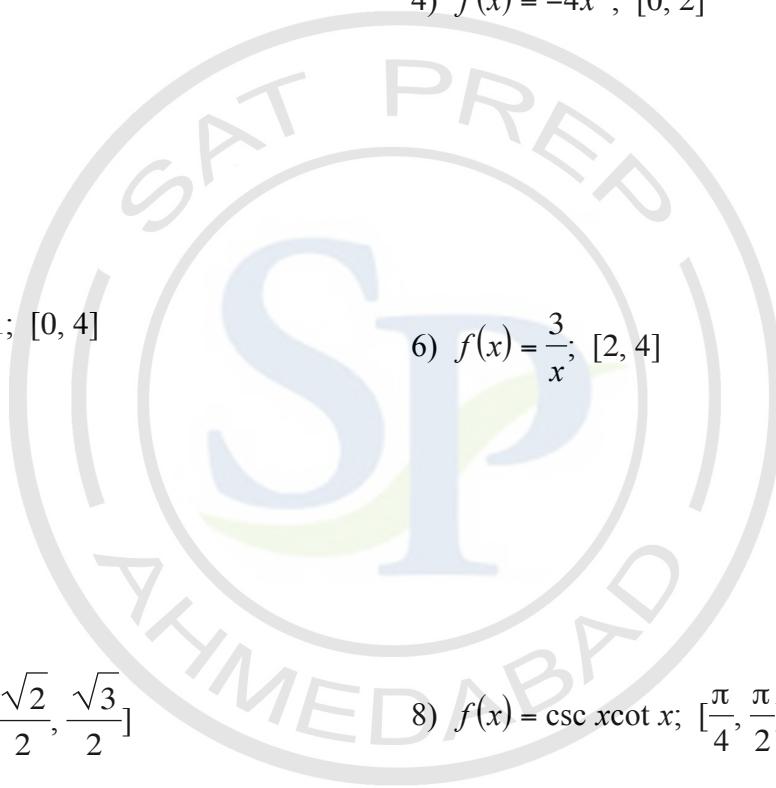
6)  $f(x) = \frac{3}{x}; [2, 4]$

7)  $f(x) = \frac{1}{\sqrt{1-x^2}}; [\frac{\sqrt{2}}{2}, \frac{\sqrt{3}}{2}]$

8)  $f(x) = \csc x \cot x; [\frac{\pi}{4}, \frac{\pi}{2}]$

9)  $f(x) = -3e^x; [-2, 0]$

10)  $f(x) = -e^x; [-3, 0]$



## Answers to Assignment-Average value theorem (ID: 1)

$$1) -1$$

$$2) -2$$

$$3) \frac{e^2 - 1}{2e} \approx 1.175$$

$$4) -\frac{8\sqrt{2}}{3} \approx -3.771$$

$$5) \frac{5}{3} \approx 1.667$$

$$6) \frac{3 \ln 4 - 3 \ln 2}{2} \approx 1.04$$

$$7) \frac{\pi\sqrt{3} + \pi\sqrt{2}}{6} \approx 1.647$$

$$8) \frac{-4 + 4\sqrt{2}}{\pi} \approx 0.527$$

$$9) \frac{-3e^2 + 3}{2e^2} \approx -1.297$$

$$10) \frac{-e^3 + 1}{3e^3} \approx -0.317$$

