8.1 Average Value of a Function

Calculus   Name: _____

Find the average value of each function on the given interval.

1. $f(x) = \sqrt{x}$ on $[1, 9]$

2. $f(x) = \frac{1}{x^2}$ on $[1, 5]$

3. $f(x) = \cos(2x)$ on $\left[\frac{\pi}{3}, \pi\right]$

On the given interval, find the x-value where the function is equivalent to the average value on that interval.

4. $f(x) = -2x + 1$ on $[0, 4]$

5. $f(x) = 2\sqrt{x}$ on $[0, 1]$

Find the average rate of change on the given interval.

6. $f(x) = \dfrac{1}{x-2}$ on $[-4,-1]$

7. $y = -x^2 + x + 2$ on $[-1,2]$

Find where the instantaneous rate of change is equivalent to the average rate of change.

8. $y = -\dfrac{1}{2}x^2 + 2x - 1$ on $[1,4]$

9. $y = -\sqrt{5x + 15}$ on $[-3,-1]$