$\sqrt{x}$

$\sqrt{10}$

3

9 10

$$\left(\sqrt{x}\right)' = \frac{1}{2\sqrt{x}}$$

$$f(10) - f(9) = \frac{1}{2\sqrt{c}} \cdot (10 - 9) \quad \cdots \text{平均値}$$

$$\boxed{9 < c < 10}$$

$$f(10) = f(9) + \frac{1}{2\sqrt{c}} \cdot 1$$

$$f(10) = 3 + \frac{1}{2\sqrt{c}}$$

$9 < c < 10$ なので

$$3 + \frac{1}{2\sqrt{9}} > \boxed{\sqrt{10}} > 3 + \frac{1}{2\sqrt{10}}$$

$$3 + \frac{1}{6} = \boxed{\frac{19}{6}} > \sqrt{10} > 3 + \frac{1}{2\sqrt{10}}$$

$$\frac{19}{6} > \sqrt{10} \quad \text{より}^2$$

$$\frac{6}{19} < \frac{1}{\sqrt{10}}$$

$$3 + \frac{1}{2\sqrt{10}} > 3 + \frac{\cancel{6}^{\,3}}{2 \cdot 19} = 3.15 \cdots$$

$$\therefore \quad \frac{19}{6} > \sqrt{10} > \frac{60}{19}$$

$$\frac{19}{6} \times \frac{6}{19} = 10$$