

⑥ $f(x) = 3 - \frac{2}{x}, (1, 3)$ for what c does $\frac{f(3) - f(1)}{3 - 1} = f'(c)$

$f(x) = 3 - 2x^{-1}$ $f'(x) = 2x^{-2} = \frac{2}{x^2}$ $f(1) = 3 - \frac{2}{1} = 1$

$f(3) = 3 - \frac{2}{3} = 2\frac{1}{3}$

$m = \frac{2\frac{1}{3} - 1}{3 - 1} = \frac{1\frac{1}{3}}{2} = \frac{\frac{4}{3}}{2} = \frac{4}{6} = \frac{2}{3}$

$\frac{2}{x^2} = \frac{2}{3}$

$\frac{2x^2}{2} = \frac{6}{2}$

$x = \sqrt{3}$

$\sqrt{x^2} = \sqrt{3}$

$x = \pm\sqrt{3}$

$f(x) = \text{continuous}$

$f'(x) = \text{exists}$

⑦ $f(x) = (3x - 6)^4$ $(2, 0)$ is _____

$f'(x) = 4(3x - 6)^3(3) = 12(3x - 6)^3 = 0$ $3x - 6 = 0$ $x = 2$

$f'(0) = -$ $f'(3) = +$ $\curvearrowright \curvearrowright (2, 0)$ Rel Min **Absolute Min**

⑧ $y = (x^2 - 2)^{\frac{2}{3}}$ Critical #'s

$y' = \frac{2}{3}(x^2 - 2)^{-\frac{1}{3}}(2x) = \frac{4x}{3(x^2 - 2)^{\frac{1}{3}}}$ $4x = 0$ $x = 0$

$\frac{3(x^2 - 2)^{\frac{1}{3}}}{3} = 0$
 $((x^2 - 2)^{\frac{1}{3}}) = (0)^{\frac{1}{3}}$

$x^2 - 2 = 0$
 $x = \pm\sqrt{2}$