

Attendance check-in #4

$$1) \frac{d}{dx} x^k = kx^{k-1}$$

$$2) f(x) = 5\sqrt{x} + 2x$$

$$\begin{aligned} & \left(\frac{d}{dx} \right) 5\sqrt{x} + \left(\frac{d}{dx} \right) \frac{2}{x} \\ & \downarrow \qquad \qquad \downarrow \\ & 5 \left(\frac{1}{2} x^{\frac{1}{2}-1} \right) + 2 \left(x^{-1-1} \right) \\ & \downarrow \qquad \qquad \downarrow \\ & \frac{5x^{-\frac{1}{2}}}{2} + 2 \left(-x^{-2} \right) \\ & \downarrow \qquad \qquad \downarrow \\ & \frac{5}{2x^{\frac{1}{2}}} - \frac{2}{x^2} \end{aligned}$$

$$\boxed{\frac{5}{2x^{\frac{1}{2}}} - \frac{2}{x^2}}$$

$$3) x^3 - 2x \quad x=2 \quad dx=0.05$$

$$\begin{aligned} & (2^3 - 2(2)) (0.05) / (1/2) \\ & 8 - 4 \quad (0.05) \\ & \downarrow \\ & 4(0.05) \\ & \downarrow \end{aligned}$$

$$\boxed{dy = 0.2}$$