

$$\textcircled{1} \int \sqrt[3]{x}(x^2 - 4x) dx$$

$$\int x^{1/3}(x^2 - 4x) dx = \int x^{7/3} - 4x^{4/3} dx = \frac{3}{10}x^{10/3} - 4\left(\frac{3}{7}x^{7/3}\right) + c =$$

$$\frac{3}{10}x^{10/3} - \frac{12}{7}x^{7/3} + c$$

$$\textcircled{2} \int \frac{5x^2 - 2}{\sqrt[4]{x}} dx$$

$$\int \frac{5x^2 - 2}{x^{1/4}} dx = \int 5x^{3/4} - 2x^{-1/4} dx = \frac{20}{11}x^{11/4} - \frac{8}{3}x^{3/4} + c$$

$$\textcircled{3} \int_2^4 f(x) dx = 4 \quad \& \quad \int_2^{10} f(x) dx = 20$$

$$a) \int_2^2 f(x) dx =$$

$$b) \int_4^{10} f(x) dx =$$

$$c) \int_4^2 f(x) dx =$$

$$a) 0$$

$$b) 20 - 4 = \textcircled{16}$$

$$c) -(4) = \textcircled{-4}$$

$$\textcircled{4} f''(x) = 4x, f'(0) = 3, f(0) = 1 \quad f(x) = ?$$

$$\int 4x dx = 2x^2 + c = f'(x)$$

$$2(0)^2 + c = 3$$

$$f'(x) = 2x^2 + 3 \quad c = 3$$

$$f(x) = \int 2x^2 + 3 dx$$

$$\frac{2x^3}{3} + 3x + c = f(x)$$

$$\frac{2(0)^3}{3} + 3(0) + c = 1$$

$$c = 1$$

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