

若  $F(x) = \int_{2x}^{x^3-4} \frac{1}{1+\sqrt{t}} dt$ , 求  $F'(2)$

先求  $F(x)$   
再求  $F'(2)$

$$F'(x) = \frac{1}{1+\sqrt{x^3-4}} (x^3-4)' - \frac{1}{1+\sqrt{2x}} (2x)'$$

$$= \frac{3x^2}{1+\sqrt{x^3-4}} - \frac{2}{1+\sqrt{2x}}$$

$$F'(2) = \frac{3 \cdot 4}{1+\sqrt{8-4}} - \frac{2}{1+\sqrt{4}}$$

$\sqrt{4} = 2$

$$= \frac{12}{1+2} - \frac{2}{1+2}$$

$$= \frac{12}{3} - \frac{2}{3}$$

$$= \frac{10}{3}$$