

$$(17) \frac{d}{dx} (y^{-3/2} + x^{3/2} = 1)$$

y is an implicit function of x
 $y(x)$

$$-\frac{3}{2} y^{-5/2} \frac{dy}{dx} + \frac{3}{2} x^{1/2} = 0$$

$$-\frac{3}{2} y^{-5/2} y' = -\frac{3}{2} x^{1/2}$$

$$y' = \frac{-\frac{3}{2} x^{1/2}}{-\frac{3}{2} y^{-5/2}} = x^{1/2} y^{5/2} = y^2 \sqrt{xy}$$

$$\textcircled{1} \frac{d}{dx} (x^2 + 2y^3 = 6)$$

$$\downarrow$$
$$2x + 6y^2 y' = 0 \quad (2, 1)$$

$$6y^2 y' = -2x$$

$$y' = -\frac{2x}{6y^2} = -\frac{x}{3y^2} = \frac{-2}{3}$$

$$\textcircled{2} \frac{d}{dx} (xy + 3x + y = 1)$$
$$x \frac{dy}{dx} + y + 3 + \frac{dy}{dx} = 0$$

$$(x+1) y' + y + 3 = 0$$

$$y' = -\frac{dy}{dx}$$