a)

Find an equation of the tangent to the curve $y = 2x^3$ at the point (1,2)

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

$$\frac{dy}{dx}_{x=1} = 6 \times (1)^2 = 6$$

$$y - y_1 = m(x - x_1)$$

$$y - 2 = 6(x - 1)$$

$$y - 2 = 6x - 6$$

$$y = 6x - 4$$

b)

Find an equation of the tangent to the curve $y = 3x^5$ at the point (1,3)

$$\frac{dy}{dx} = 15x^4$$

$$\frac{dy}{dx}_{x=1} = 15 \times (1)^4 = 15$$

c)

Find an equation of the tangent to the curve $y = \frac{4}{x}$ at the point (1,4)

$$\frac{dy}{dx} = -4x^{-2} = -\frac{4}{x^2}$$

d)

Find an equation of the tangent to the curve $y = 5\sqrt{x}$ at the point (1,5)