

Higher Order Derivatives WS answers

$$1) f'''(x) = 18 + \frac{18}{x^4}$$

$$2) f^{(4)}(x) = 32 \sin(2x)$$

$$3) \frac{d^3 y}{dy^3} = \frac{4}{x^3}$$

$$4) \frac{d^3 y}{dx^3} = e^{\sin(x)} \cos^3(x) - 3 \sin(x) \cos(x) e^{\sin(x)} - e^{\sin(x)} \cos(x)$$

$$5) f''(x) = - \frac{x}{\sqrt{(1-x^2)^3}}$$

$$6) \frac{d^2 y}{dx^2} = 2 \sin^2\left(\frac{2}{x}\right) - \frac{8 \sin\left(\frac{2}{x}\right) \cos\left(\frac{2}{x}\right)}{x} + \frac{8 \cos^2\left(\frac{2}{x}\right) - 8 \sin^2\left(\frac{2}{x}\right)}{x^2}$$

$$7) f''(x) = 6x e^{x^2} \ln(x) + \frac{e^{x^2}}{x} + 4x^3 e^{x^2} \ln(x) + 4x e^{x^2}$$