6th assignment

P215-216: 12, 14, 16, 18, 20, 26, 29, 36, 37, 55, 56, 59, 60

P223: 18, 20, 22, 39, 41, 43, 45

ANSWER P215

12.
$$\frac{dy}{dx} = \frac{1}{2xy\cos(xy^2)} - \frac{y}{2x}$$

14.
$$\frac{dy}{dx} = \frac{y - e^y * \cos(x) + 1}{e^y * \sin(x) - x}$$

16.
$$\frac{dy}{dx} = \frac{4xy^2 + 4x^3y^4 - 1}{1 - 4x^2y - 4x^4y^3}$$

$$\frac{dy}{dx} = \frac{1 - 4xy^2 * (x+y)^{\frac{1}{2}}}{4x^2y(x+y)^{\frac{1}{2}} - 1}$$

18.
$$\frac{dy}{dx} = -\frac{\sin y + y\cos x}{\sin x + x\cos y}$$

20.
$$\frac{dy}{dx} = \frac{\sec^2(x-y)(1+x^2) + 2xy}{1 + x^2 + \sec^2(x-y)(1+x^2)^2}$$
$$or$$
$$\frac{dy}{dx} = \frac{(1+x^2)^2 + 2xy\cos^2(x-y)}{(1+x^2)^2 + \cos^2(x-y)(1+x^2)}$$

26.
$$\frac{dy}{dx} = \frac{1}{3}$$

29.
$$\frac{dy}{dx} = 1$$

36.
$$\frac{d(\frac{dy}{dx})}{dx} = \frac{\frac{\sqrt{y}}{\sqrt{x}} + 1}{2x}$$

37.
$$\frac{d(\frac{dy}{dx})}{dx} = -2\frac{xy^3 + x^4}{y^5}$$

55.

$$\frac{dh}{dt} = sec^2 t - \frac{sec^2 \frac{1}{t}}{t^2}$$

$$or$$

$$\frac{dh}{dt} = \frac{1}{cos^2 t} - \frac{1}{t^2 cos^2 \frac{1}{t}}$$

56.

$$\frac{df}{d\theta} = \frac{cos\theta}{2\sqrt{sin\theta - sin^2\theta}}$$

59.

$$\frac{dy}{dx} = \frac{(a^2 - b^2)sinx}{\sqrt{1 - (\frac{b+acosx}{a+bcosx})^2}(a+bcosx)^2}$$

$$or$$

$$\frac{dy}{dx} = \frac{(a^2 - b^2)sinx}{(a+bcosx)\sqrt{a - b + (b-a)cosx}}$$

60.

$$\frac{dy}{dx} = -\frac{1}{2\sqrt{1 - x^2}}$$

ANSWER P223

18.

$$\frac{dy}{dx} = -\frac{tan(lnx)}{x}$$

20.

$$\frac{dH}{dz} = \frac{2a^2 z}{z^4 - a^4}$$

22.

$$\frac{dy}{dx} = -\log_2 e - \frac{\pi}{\ln 2} tanx\pi$$

39.

$$\frac{dy}{dx} = (2x+1)^4(x^4 - 3)^5(58x^4 + 24x^3 - 30)$$

41.

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

43.

$$\frac{dy}{dx} = x^x(lnx + 1)$$

45.

$$\frac{dy}{dx} = x^{sinx}(cosxlnx + \frac{sinx}{x})$$