Week 5 Homework MAT2601 (Homework)

Question 1

$$\frac{16}{x}$$

Question 2.

$$\frac{1}{x}$$

Question 3.

$$\frac{8x-1}{4x^2-x} + 7$$

Question 4

(a) $$\frac{-3}{x(x-3)}$$

(b) $$\frac{-3}{x(x-3)}$$

The function in part (b) is the same function as ~~it~~ that in part (a).

Question 5.

$$\frac{dy}{dt} = \frac{3t^2 - 36t - 1}{2(t-9)(t^2+1)}$$

OR

$$\frac{dy}{dt} = \frac{36t - 3t^2 + 1}{2(t^2+1)(9-t)}$$

Question 6.

$$y' = \frac{4(\ln(x))^3}{x} \quad \text{OR} \quad \frac{4\ln(x)^3}{x}$$

Question 7

$$3e^x - 8$$

Question 8.

$$e^e - ex^{e-1} \quad \text{OR} \quad e^x - \frac{ex^e}{x}$$

Question 9.

$$7x^6 e^{x^7}$$

Question 10

$$18x(x^2+1)^2 e^{(x^2+1)^3}$$

Question 11

$$\frac{e^{\sqrt{x}}}{\sqrt{x}}$$

Question 12.

$$\frac{5e^{5x}}{e^{5x}+7}$$

Question 13.

$$\frac{3}{2}$$

Question 14

$$\frac{-y}{2x-3y}$$

Question 15.

$$\frac{x(3x^2-2)}{3y^2(y+1)}$$

Question 16.

$$\frac{1}{12}$$