

Question ~~7/19/19~~

Q 3

a)

$$(i) \frac{50x^9}{9} + \frac{60x^7}{7} - 20x^5 - 40x^3 + C$$

$$\frac{x^3(35x^6 + 54x^4 - 126x^2 - 252)}{63} + C$$

(ii)

$$\frac{x(e^3 x (2e^2(e^3 x + 3) + 3) + 12)}{6} + C$$

$$\frac{x(2e^8 x^2 + (6e^5 + 3e^3)x + 12)}{6} + C$$

(iii)

$$\int x^3(3x^2+2)^3 dx + 4 \int x dx + 3 \int 1 dx$$
$$\frac{(3x^2+2)^5}{90} - \frac{(3x^2+2)^3}{36} + 2x^2 + 3x + C$$

$$= \frac{x(54x^9 + 135x^7 + 120x^5 + 40x^3 + 60)}{20} + C$$

$$= \frac{24614}{20}$$