

$$\boxed{34} \text{ If } \int g(x) dx = (5x^2 + 2)^6 + C, \text{ find } g(x)$$

differentiate both sides.

$$g(x) = 6(5x^2 + 2)^5 (10x) \\ = 60x(5x^2 + 2)^5$$

- Sec 2.3: Integrals involving exponential and logarithmic functions:-

$$\boxed{10} \int x e^{2x^2} dx$$

4x

$$= \frac{1}{4} \int 4x e^{2x^2} dx = \frac{1}{4} e^{2x^2} + C$$

$$\boxed{14} \int \frac{x^3}{e^{4x^4}} dx$$

$$= \int x^3 e^{-4x^4} dx$$

-16x^3

$$= \frac{1}{-16} \int (-16)x^3 e^{-4x^4} dx = \frac{1}{16} e^{-4x^4} + C$$