

1) 354 1. 3.

a) $\int \frac{4x^2 - 5x + 7}{2} dx = \frac{1}{2} \left[\frac{4x^3}{3} - \frac{5x^2}{2} + 7x \right] + K$

b) $\int \frac{x dx}{\sqrt[3]{x}} = \int x^{-\frac{1}{3}} dx = \int x^{\frac{2}{3}} dx = \frac{x^{\frac{2}{3}+1}}{\frac{2}{3}+1} = \frac{x^{\frac{5}{3}}}{\frac{5}{3}} + K$
 $= \frac{3x^{\frac{5}{3}}}{5} + K$

c) $\int \frac{1}{2x+7} dx = \frac{1}{2} \ln|2x+7| + K$

d) $\int (x - \sin x) dx = \frac{x^2}{2} - \cos x + C$

2) a) $\int (x^2 + 1)^2 dx = \int (x^4 + 2x^2 + 1) dx = \frac{x^5}{5} + \frac{2x^3}{3} + x + K$

b) $\int (x-5)^3 dx = \frac{(x-5)^4}{4} + K$

c) $\int \sqrt{3x+5} dx = \int (3x+5)^{\frac{1}{2}} dx = \frac{1}{3} \frac{(3x+5)^{\frac{11}{2}}}{\frac{11}{2}+1} + K = \frac{2}{9} \sqrt{(3x+5)^{\frac{11}{2}}} + K$

d) $\int (\cos x + e^x) dx = \int \cos x dx + \int e^x dx = \sin x + e^x + K$

3) a) $\int \sqrt[3]{\frac{x^5}{2}} dx = \int \sqrt[3]{\frac{1}{2}} x^{\frac{2}{3}} dx = \sqrt[3]{\frac{1}{2}} \cdot \frac{x^{\frac{2}{3}+1}}{\frac{2}{3}+1} = \sqrt[3]{\frac{1}{2}} \frac{x^{\frac{5}{3}}}{\frac{5}{3}}$
 $= \frac{3}{5} \sqrt[3]{\frac{1}{2}} x^{\frac{5}{3}} + K$

b) $\int \frac{7}{\cos^3 x} dx = 7 \operatorname{tg} x + K$

c) $\int \sin(x-4) dx = -\cos(x-4) + K$

d) $\int (e^{2x} + 3e^{-x}) dx = \int e^{2x} dx + \int 3e^{-x} dx = \frac{1}{2} e^{2x} + 3(-1) e^{-x} + K$
 $= \frac{1}{2} e^{2x} - 3e^{-x} + K$