

1)  $\int (x - 4) dx$

$y = \frac{1}{2}x^2 - 4x + C$

2)  $\int (3x^2 + \sqrt{3}) dx$

$y = x^3 + \sqrt{3}x + C$

3)  $\int (3x^{2/3}) dx$

$y = \frac{9}{5} x^{5/3} + C$

4)  $\int (7x^{-3/4}) dx$

$y = 28 x^{1/4} + C$

5)  $\int (3x^2 - \pi x) dx$

$y = x^3 - \frac{\pi}{2}x^2 + C$

6)  $\int (x^{100} + x^{99}) dx$

$y = \frac{1}{101} x^{101} + \frac{1}{100} x^{100} + C$

7)  $\int x^2(x^3 + 5x^2 - 3x + \sqrt{3}) dx$

$\int (x^5 + 5x^4 - 3x^3 + \sqrt{3}x^2) dx$

$y = \frac{1}{6}x^6 + x^5 - \frac{3}{4}x^4 + \frac{\sqrt{3}}{3}x^3 + C$

8)  $\int \left( \frac{\sqrt{2x}}{x} - \frac{3}{x^5} \right) dx$

$\int (\sqrt{2}x^{-1/2} - 3x^{-5}) dx$

$y = 2\sqrt{2}x^{1/2} + \frac{3}{4}x^{-4} + C$

9)  $\int \left( \frac{x^6 - x}{x^3} \right) dx$

$\int (x^3 - x^{-2}) dx$

$y = \frac{1}{4}x^4 + x^{-1} + C$

10)  $\int (x^3 + \sqrt{x}) dx$

$y = \frac{1}{4}x^4 + \frac{2}{3}x^{3/2} + C$

11)  $\int (z + \sqrt{2z})^2 dz$

$\int (z^2 + 2z\sqrt{2z} + 2z) dz$

$\int (z^2 + 2\sqrt{2}z^{3/2} + 2z) dz$

$y = \frac{1}{3}z^3 + \frac{4\sqrt{2}}{5}z^{5/2} + z^2 + C$

12)  $\int \frac{s(s+1)^2}{\sqrt{s}} ds$

$\int \frac{s^{1/2}(s^2+2s+1)}{s^{1/2}} ds$

$\int (s^{5/2} + 2s^{3/2} + s^{1/2}) ds$

$y = \frac{2}{7}s^{7/2} + \frac{4}{5}s^{5/2} + \frac{2}{3}s^{3/2} + C$

13)  $\int (t^2 - 2\cos t) dt$

$y = \frac{1}{3}t^3 - 2\sin t + C$

14)  $\int \left( \sqrt{x} + \frac{1}{x^2} \right)^2 dx$

$\int (x^{1/2} + x^{-2})(x^{1/2} + x^{-2}) dx$

$\int (x + 2x^{-3/2} + x^{-4}) dx$

$y = \frac{1}{2}x^2 - 4x^{-1/2} - \frac{1}{3}x^{-3} + C$

Find the original function given the second derivative

15)  $\int (t^4 + 6t^3 - 12t^2 + 16) dt$

$y' = \frac{1}{5}t^5 + \frac{3}{2}t^4 - 4t^3 + 16t + C$

$y = \frac{1}{30}t^6 + \frac{3}{10}t^5 - t^4 + 8t^3 + C_1 + C_2$

16)  $\int (\sqrt[4]{t} + 3t^{-3} - 8t^6 - 6\cos t + 1) dt$

$y' = \frac{4}{5}t^{5/4} - \frac{3}{2}t^{-2} - \frac{8}{7}t^7 - 6\sin t + t + C$

$y = \frac{16}{45}t^{9/4} + \frac{3}{2}t^{-1} - \frac{1}{7}t^8 + 6\cos t + \frac{1}{2}t^2 + C_1 + C_2$