

1.

- a)  $\frac{x^5}{5} - \frac{3x^2}{2} - \frac{1}{x} - \frac{2}{x^2} + C$   
 b)  $4 \sec x - 3e^x + 5 \ln|x| - \frac{3}{4}x^{4/3} + C$   
 c)  $-2 \cot x + \frac{1}{4} \sin 4x + \frac{2}{x} + \frac{15x^{2/3}}{2} + C$   
 d)  $\frac{1}{2} \ln|x| + 4\sqrt{x} + \frac{1}{3} \cos 3x - 4 \tan x + C$

2.

- a)  $-\frac{1}{x} - \frac{1}{2x^2} + C$   
 b)  $\frac{3}{2}x^{2/3} + \frac{4}{7}x^{7/4} + C$   
 c)  $2 \ln|x| - \frac{1}{5}e^{-5x} + C$   
 d)  $-\frac{1}{12} \tan 4x + C$   
 e)  $2x - \frac{1}{2}x^{2/3} + C$   
 f)  $\frac{3^x}{\ln 3} + \frac{1}{5} \csc 5x + C$   
 g)  $-\frac{1}{2} \cos 2x + \cot x + \sinh x + \tanh x + C$   
 h)  $2 \ln|x| - \frac{4}{x} + \frac{9}{16}x^{4/3} + \frac{2}{5}x^{5/2} - \frac{2}{5} \sin 5x + \frac{1}{3} \cot 3x + C$   
 i)  $\frac{x^{11}}{11} + \frac{1}{x^2} + \frac{2}{3}\sqrt{x} + \pi x - \frac{e^{5x}}{15} - \frac{1}{2} \sec 2x + C$

3.  $f(x) = \frac{x^4}{4} - \frac{x^3}{6} + \frac{5}{2}x^2 + Cx + D$

4.  $f(x) = 3 \sin^{-1} x + 4$

5.

- a)  $s(t) = \frac{2}{3}t^3 - \frac{2}{3}t^{3/2} - \frac{97}{3}$   
 b)  $s(t) = 4 \tan^{-1} t - \pi$   
 c)  $s(t) = \frac{t^3}{6} - \ln|t| + \frac{3}{2}t + \ln 2 - \frac{4}{3}$   
 d)  $s(t) = -5 \sin t + 2 \cos t + \frac{2}{\pi}t - 2$

6. True

7. False