

**Solve the following:**

1.  $\int \ln x \, dx$

2.  $\int x e^{3x} \, dx$

3.  $\int x^3 \sin x \, dx$

4.  $\int e^{2x} \sin(3x) \, dx$

5.  $\int \frac{5}{x^2+3x-4} \, dx$

6.  $\int \frac{1}{x^2+8x+25} \, dx$

7.  $\int \frac{x^2+2x-1}{2x^3+3x^2-2x} \, dx$

8.  $\int \frac{x^4-2x^2+4x+1}{x^3-x^2-x+1} \, dx$

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