

DETERMINE HOW YOU WOULD START TO FIND EACH OF THE FOLLOWING INTEGRALS.

- ① IF YOU USE SUBSTITUTION, WRITE THE INTEGRAL IN TERMS OF  $u$  AND DETERMINE WHAT YOU WOULD DO NEXT.
- ② IF YOU USE INTEGRATION BY PARTS, FIND  $u$  AND  $dv$  AND  $du$  AND  $v$ .
- ③ IF YOU USE PARTIAL FRACTIONS, COMPLETE THE FIRST 3 STEPS OF THE PROCEDURE.

1)  $\int x^3 e^{5x} dx$

9)  $\int \frac{1}{e^{2x} + 5e^x} dx$

2)  $\int \frac{x^4}{x^2 - 5} dx$

10)  $\int x^5 \cos x^3 dx$

3)  $\int x^2 e^{5x^3} dx$

11)  $\int x^8 (\ln x)^2 dx$

4)  $\int \frac{\ln x}{x^4} dx$

12)  $\int \frac{x+5}{x^4 + 9x^2} dx$

5)  $\int \frac{\sqrt{x}}{x-9} dx$

13)  $\int x^2 \tan^{-1} x dx$

6)  $\int \frac{x^2}{(x^2+4)^2} dx$

14)  $\int \frac{1}{x\sqrt{x+4}} dx$

7)  $\int \frac{x^5 - 3x + 8}{x^3 + 3x^2} dx$

15)  $\int e^{2x} \cos 4x dx$

8)  $\int x^2 \sin^{-1} x dx$

16)  $\int \frac{\cos \theta}{\sin^2 \theta + 9} d\theta$

17)  $\int \frac{1}{x^3 - 2x^2} dx$