HW 42b: 9.1 #5, 9, 13, 18, 25, 31, 47 Integration by Parts Name_____ Period: ___ Date:_____

 # 5 Exercises 5-31: Evaluate the integral.

$$\int x\cos 5x\ dx$$

 # 18 $\int e^{3x}\cos 2x\ dx$

 # 9 $\int x^2\cos x\ dx$

 # 25 $\int_0^{\pi/2} x\sin 2x\ dx$

 # 13 $\int \sqrt{x}\ln x\ dx$

 # 31 $\int (\ln x)^2\ dx$

 # 47

The region bounded by the graphs of $y = \ln x$, $y = 0$, and $x = e$ is revolved about the y-axis. Find the volume of the resulting solid.

Answers

5) $\frac{1}{5}x\sin 5x + \frac{1}{25}\cos 5x + C$

9) $x^2 \sin x + 2x\cos x - 2\sin x + C$

13) $\frac{2}{9}x^{3/2}(3\ln x - 2) + C$

18) $\frac{1}{13}e^{3x}(3\cos 2x + 2\sin 2x) + C$

25) $\frac{\pi}{4}$

31) $x(\ln x)^2 - 2x\ln x + 2x + C$

47) $\frac{\pi}{2}(e^2 + 1) \approx 13.18$