1. (intbyparts:arcsine)
   Compute $\int \arcsin(x)dx$.

2. (intbyparts:ln)
   Compute $\int \ln(x)dx$

3. (intbyparts:arccos)
   Compute $\int \arccos(x)dx$.

4. (intbyparts:arctan)
   Compute $\int \arctan(x)dx$.

5. (intbyparts:sec3)
   Compute $\int \sec^3(x)dx$.

6. (intbyparts:xnlog)
   Let $n \neq -1$ and compute $\int x^n \ln(x)dx$.

7. (intbyparts:gamma)
   For $x > 0$, call $\Gamma(x) = \int_0^\infty t^{x-1}e^{-t}dt$. Show that $\Gamma(x+1) = x\Gamma(x)$.

8. (intbyparts:taylorfo)
   Suppose that h is twice continuously differentiable. Use integration by parts and the fundamental theorem of calculus to show that
   $$h(x) = h(0) + h^{'}(0)x + \int_0^x (x-t)h^{''}(t)dt$$

9. (intbyparts:expasinb)
   Compute $\int e^{ax}\sin(bx)dx$ where $a, b \neq 0$.

10. (intbyparts:expacosb)
    Compute $\int e^{ax}\cos(bx)dx$ where $a, b \neq= 0$.

11. (intbyparts:xmlnn)
    Assuming that $m \neq -1$, show that
    $$\int x^m (\ln(x))^n dx = \frac{1}{m+1}x^{m+1}(\ln(x))^n - \frac{n}{m+1}\int x^m (\ln(x))^{n-1} dx$$

12. (intbyparts:xln)
    Compute $\int x\ln(x)dx$.

13. (intbyparts:xex)
    Compute $\int xe^x dx$.

14. (intbyparts:exsin)
Compute $\int e^x \sin(x) dx$.

15. (intbyparts:definite1)
Compute $\int_0^1 \ln(2t+1) dt$.