Integrals — By parts

Name: _____ Date: _____

Find each integral by parts: $\int u\,dv = uv - \int v\,du$.

1. $\int xe^x\,dx$

   $u = x,\ dv = e^x\,dx$
   $du = dx,\ v = e^x$
   $= xe^x - \int e^x\,dx$
   $= xe^x - e^x + C$

2. $\int -4x \sin x\,dx$

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

4. $\int -x \cos x\,dx$

5. $\int -5x \sin x\,dx$

6. $\int -2x \sin x\,dx$

Integrals · By parts — Answer key

1. $\int xe^x\,dx = xe^x - e^x + C$

2. $\int -4x \sin x\,dx = 4x \cos x - 4 \sin x + C$

3. $\int x \sin x\,dx = -x \cos x + \sin x + C$

4. $\int -x \cos x\,dx = -x \sin x - \cos x + C$

5. $\int -5x \sin x\,dx = 5x \cos x - 5 \sin x + C$

6. $\int -2x \sin x\,dx = 2x \cos x - 2 \sin x + C$