Integration by Parts
Evaluate each of the given integrals.

1. \[ \int_{2}^{0} (6-x)e^{4-2x} \, dx \]

2. \[ \int (w^2 - 6w)\sin(2w) \, dw \]

3. \[ \int 2 \tan^{-1}\left(\frac{w}{2}\right) \, dw \]

4. \[ \int_{0}^{1} e^{y} \cos(4y) \, dy \]

5. \[ \int 3x^7 \cos(2 - x^4) \, dx \]

Integrals Involving Trig Functions
For problems 6 – 8 evaluate the given integral.

6. \[ \int \sin^6\left(\frac{t}{3}\right)\cos^5\left(\frac{t}{3}\right) \, dt \]

7. \[ \int \cos^4x \, dx \]

8. \[ \int \tan^3(4z)\sec^2(4z) \, dz \]

For problems 9 & 10 evaluate the given integral. Note that even though I didn’t do any problems like these in class you DO have the knowledge to do them.

9. \[ \int \frac{1 - \sin^3(2t)}{\cos^2(2t)} \, dt \]

10. \[ \int \csc^6(x) \, dx \]