

4. (cont.)

$$= \frac{10}{343} \int_{v=-5}^{v=2} \left( \frac{16}{3} - 18v + 8v^2 + 144 + 162v + 24v^2 \right) dv$$

$$= \frac{10}{343} \int_{v=-5}^{v=2} \left( \frac{448}{3} + 144v + 32v^2 \right) dv$$

$$= \frac{10}{343} \left[ \frac{448}{3}v + \frac{144}{2}v^2 + \frac{32}{3}v^3 \right]_{v=-5}^{v=2}$$

$$= \frac{10}{343} \left[ \frac{448}{3}(2) + 72(2)^2 + \frac{32}{3}(2)^3 - \left( \frac{448}{3}(-5) + 72(-5)^2 + \frac{32}{3}(-5)^3 \right) \right]$$

$$= 27.76$$

$$= \frac{1260}{49}$$