

## Lesson 7.2.3

7-79.  $\frac{1}{18} \left( \frac{3}{2}x^4 - 3x \right)^6 + C$

7-80. See below:

a.  $-\frac{2}{5} \cos(5x^3) + C; u = 5x^3$

b.  $\frac{1}{50} e^{5x^{10}-2} + C; u = 5x^{10}-2$

c.  $\frac{1}{168} (7x^4 - 3)^6 + C; u = 7x^4 - 3$

d.  $-\frac{1}{24} \cos^6(x^4 - 3) + C; u = \cos(x^4 - 3)$

e.  $\frac{1}{3} \ln|x^3 - 1| + C; u = x^3 - 1$

f.  $-\frac{2}{3} \sqrt{\left(\frac{1}{x} + 1\right)^3} + C; u = \frac{1}{x} + 1$

7-81. See below:

a. Answers vary—students may answer that Greta made a mistake. The bounds Greta used in Step 1 were in terms of  $x$ , not  $u$ . She could either change the bounds or define them in terms of  $x$ .

b. Hansol rewrote the bounds in terms of  $u = 6x^4 - 3$ .

c. Step 1:  $\int_3^{-3} \frac{1}{24} u^5 du$ , Step 2:  $\frac{1}{24} \left( \frac{1}{6} u^6 \Big|_{-3}^{-3} \right) = 0$  square units

7-82. See below:

a.  $\int_2^{10} u^4 du$

b.  $\int_3^4 u du$

7-83.  $\approx 14.562$  cm/sec



**7-84.** See below:

- a.  $\frac{2}{1+4x^2}$
- b.  $2 \sec^2(2x)$
- c.  $-2 \csc^2(2x)$

**7-85.** See below:

- a.  $-2 \ln |x| + C$
- b.  $2 \sin^{-1}(x) + 2x^2 + C$
- c.  $\frac{\pi^{\pi}-1}{\ln \pi}$

**7-86.**  $\frac{2}{9\pi} \approx 0.071 \frac{\text{m}}{\text{min}}$

**7-87.** See below:

- a.  $2\pi \sum_{i=0}^7 (8-i)^2$
- b.  $408\pi \approx 1281.770 \text{ in}^3$

**7-88.**  $\approx 80.472\%$

**7-89.**  $24 + 9 \ln 9 \approx 43.775$  square miles

**7-90.** Answers vary, but  $\int_3^4 6x dx$  is a possible answer.

**7-91.** See below:

- a.  $\approx 1.207$  second
- b. 8 feet
- c. -22.624 feet per sec.
- d. 5 ft