7.1 #1-9 odd; 19, 37   area between curves

7.2 #11, 13, 17, 19, 21, 25, 29, 37   volume of solids of revolution

7.4 #7,9,19, 37,39   arc length & surface area of solids of revolution

needs to be updated for new text:
- 7.1 #5-53 odd   basic integration techniques
- 7.2 #1-35 odd   integration by parts

$$F(x) = \int_{-5x}^{5x} z^6 \, dz = \int_{-5x}^{a} z^6 \, dz + \int_{a}^{5x} z^6 \, dz$$

$$F(x) = -\int_{a}^{-5x} z^6 \, dz + \int_{a}^{5x} z^6 \, dz$$

$$F'(x) = -(-5x)^6 \cdot (-5) + (5x)^6 \cdot 5$$

$$\int_{\ln 4}^{\ln 7} e^{-x}\, dx \qquad u = -x$$

$$\qquad\qquad\qquad du = -dx$$

$$\int_{x=\ln 4}^{\ln 7} -e^{u}\, du \qquad -du = dx$$

$$= -e^{-x}\Big|_{\ln 4}^{\ln 7} = -e^{-\ln 7} - \left(-e^{-\ln 4}\right)$$

$$= -\frac{1}{7} + \frac{1}{4}$$

$$e^{-\ln a} = e^{\ln a^{-1}} = e^{\ln \frac{1}{a}} = \frac{1}{a}$$

$$u = \cos 7\theta$$

$$du = -\sin 7\theta \cdot 7 \; d\theta \qquad \int -\frac{1}{7}\frac{du}{u}$$

$$-\frac{1}{7} du = \sin 7\theta \, d\theta$$

$$x = u^2 + 5$$

$$dx = 2u\,du$$

$$-\frac{3}{2}dx = -3u\,du$$

$$-\frac{3}{2} \cdot -\frac{1}{5}x^{-5}$$