

## Chapter 7 Review Extra Practice Answers

1. a. side lengths:  $\sqrt{22}$ ,  $\sqrt{101}$ ,  $\sqrt{115}$   
angle measures:  $25.84^\circ$ ,  $69.03^\circ$ ,  $85.13^\circ$
  - b. side lengths:  $\sqrt{5}$ ,  $\sqrt{29}$ ,  $5\sqrt{2}$   
angle measures:  $13.67^\circ$ ,  $34.70^\circ$ ,  $131.63^\circ$
  - c. side lengths:  $\sqrt{21}$ ,  $\sqrt{166}$ ,  $3\sqrt{21}$   
angle measures:  $19.47^\circ$ ,  $69.56^\circ$ ,  $90.97^\circ$
  - d. side lengths:  $\sqrt{14}$ ,  $2\sqrt{29}$ ,  $\sqrt{206}$   
angle measures:  $4.98^\circ$ ,  $14.47^\circ$ ,  $160.55^\circ$
  - e. side lengths:  $3$ ,  $\sqrt{13}$ ,  $\sqrt{22}$   
angle measures:  $39.76^\circ$ ,  $50.24^\circ$ ,  $90^\circ$
  - f. side lengths:  $\sqrt{6}$ ,  $\sqrt{29}$ ,  $\sqrt{43}$   
angle measures:  $20.85^\circ$ ,  $51.50^\circ$ ,  $107.65^\circ$
2. a. 9.87 square units
  - b. 3.35 square units
  - c. 16.39 square units
  - d. 14.04 square units
  - e. 4.30 square units
  - f. 9.72 square units
3. a.  $\frac{5}{\sqrt{10}}$ ,  $\left(-\frac{1}{2}, \frac{3}{2}\right)$
  - b.  $\frac{2}{\sqrt{8}} = \frac{1}{\sqrt{2}}$ ,  $\left(\frac{1}{2}, \frac{1}{2}\right)$
  - c.  $\frac{9}{\sqrt{21}}$ ,  $\left(-\frac{6}{7}, \frac{12}{7}, \frac{3}{7}\right)$
  - d.  $\frac{18}{\sqrt{21}}$ ,  $\left(-\frac{6}{7}, \frac{12}{7}, \frac{24}{7}\right)$
  - e.  $\frac{11}{3}$ ,  $\left(\frac{11}{9}, \frac{22}{9}, \frac{22}{9}\right)$
  - f.  $\frac{30}{\sqrt{34}}$ ,  $\left(-\frac{60}{17}, \frac{45}{17}, \frac{45}{17}\right)$
4. a.  $\alpha = 90^\circ$ ,  $\beta \doteq 101.31^\circ$ ,  $\gamma \doteq 11.31^\circ$
  - b.  $\alpha \doteq 26.57^\circ$ ,  $\beta \doteq 116.57^\circ$ ,  $\gamma = 90^\circ$
  - c.  $\alpha \doteq 126.87^\circ$ ,  $\beta = 90^\circ$ ,  $\gamma \doteq 36.87^\circ$
  - d.  $\alpha \doteq 103.63^\circ$ ,  $\beta \doteq 76.37^\circ$ ,  $\gamma \doteq 19.47^\circ$
  - e.  $\alpha \doteq 73.40^\circ$ ,  $\beta \doteq 64.62^\circ$ ,  $\gamma \doteq 31.00^\circ$
  - f.  $\alpha \doteq 29.21^\circ$ ,  $\beta \doteq 77.40^\circ$ ,  $\gamma \doteq 115.88^\circ$
5. a. scalar
  - b. vector
  - c. meaningless
  - d. scalar
  - e. meaningless
  - f. meaningless
6.  $7(2500 \cos 15^\circ) \text{ J} \doteq 16\,903.70 \text{ J}$
  7. No; The magnitude of the torque is only  $40(0.3 \sin 45^\circ) \text{ J} \doteq 8.49 \text{ J}$ , which is not enough to open the jar.