

Chapter 6, Review and Practice, page 549

- given AAS or ASA, can find side using sine law; given SAS, can find side using cosine law; given SSS, can find angle using cosine law; given SSA, can find angle using sine law
- (a) $\frac{\sin L}{l} = \frac{\sin M}{m} = \frac{\sin N}{n}$ (b) $m^2 = l^2 + n^2 - 2ln \cos M$
- (a) $8 < b < 9.06$
 (b) $b = \frac{8}{\sin 62^\circ} \doteq 9.06 \text{ cm}$ or $0 < b < 8$
 (c) $b > \frac{8}{\sin 62^\circ} \doteq 9.06 \text{ cm}$
- (a) 28.0 cm (b) 149.1° (c) 180° (d) 13.0 cm
- (a) $b \doteq 19.4 \text{ cm}$, $\angle A \doteq 34.1^\circ$, $\angle C \doteq 30.9^\circ$
 (b) $r \doteq 53.5 \text{ cm}$, $q \doteq 94.0 \text{ cm}$, $\angle S = 107^\circ$
- two solutions: $(\angle B, \angle C, c) \doteq (49.7^\circ, 92.3^\circ, 21.7 \text{ cm})$ or $(130.3^\circ, 11.7^\circ, 4.41 \text{ cm})$
- (1) Does the problem involve right, acute, or obtuse angle triangles? (2) Does it involve two or three dimensions? (3) Is the sine law or cosine law used? A diagram should be part of every solution.
- 110 m
- 148.4 km
- 197.0 m
- 13.1 km
- 125°
- See diagram in Key Ideas of section 6.3.
 (a) $\frac{1}{\sqrt{2}}$ (b) $\frac{1}{\sqrt{2}}$ (c) $\frac{-1}{\sqrt{2}}$ (d) -1
- See diagram in Key Ideas of section 6.3.
 (a) $\frac{1}{2}$ (b) $\frac{\sqrt{3}}{2}$ (c) $\frac{-1}{\sqrt{3}}$ (d) $\frac{-\sqrt{3}}{2}$
- (a) $\frac{3}{4}$ (b) $1\frac{1}{2}$ (c) $\frac{3+4\sqrt{3}}{8}$ (d) $\frac{3}{4}$
- (a) $60^\circ, 120^\circ$ (b) $60^\circ, 120^\circ, 240^\circ, 300^\circ$ (c) $30^\circ, 210^\circ$
- Example: $\tan \theta \cos \theta = \sin \theta$
- An identity has infinite solutions.
- In a quadratic trigonometric equation, $\sin^2 x$, $\cos^2 x$, or $\tan^2 x$ will appear.
- factoring
- (a) $30^\circ, 90^\circ, 150^\circ, 270^\circ$ (b) $30^\circ, 150^\circ, 210^\circ, 330^\circ$
 (c) $60^\circ, 180^\circ, 300^\circ$ (d) $42^\circ, 138^\circ$
 (e) $0^\circ, 139^\circ, 221^\circ, 360^\circ$
 (f) $39.23^\circ, 140.77^\circ, 219.23^\circ, 320.77^\circ$
- (a) $0, \frac{3\pi}{2}, 2\pi$ (b) $\frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$
 (c) $0, \frac{\pi}{4}, \frac{3\pi}{4}, \pi, \frac{5\pi}{4}, \frac{7\pi}{4}, 2\pi$ (d) $\frac{\pi}{6}, \frac{5\pi}{6}$
 (e) $\frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}$ (f) no solution