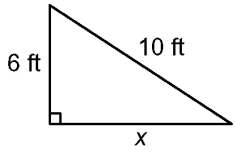
# BLM Answers

## BLM 1-1 Prerequisite Skills

**1. a)** $x = 3$ **b)** $x = 5$ **c)** $x = 15$
**d)** $x = \pm 40$ **e)** $x = \pm 11$ **f)** $x = \pm 5$
**2. a)** 39 **b)** 12 **c)** 56
**3. a)**




**b)** 8 ft
**4. a)** 1:3 **b)** 2:7 **c)** 2:5 **d)** 3:1
**5.** oil 1:8; gas 7:8
**6.** 2:1
**7. a)** $x = 2$ **b)** $x = 10$ **c)** $x = 55$
**d)** $y = 12$ **e)** $b = 4$ **f)** $x = 9, y = 81$
**8.** 9 g walnuts
**9. a)** 7.5 **b)** 14.1 **c)** 3.5 **d)** 20.4
**10. a)** $a = 60º, b = 60º$ **b)** $d = 35°, e = 110°$

## BLM 1-3 Section 1.1 Revisit the Primary Trigonometric Ratios

**1. a)** AB and AC **b)** DE and EF **c)** GI and GH
**2. a)** 0.707 **b)** 0.5 **c)** 0.577
**3. a)** $\angle A = 56.68°$ **b)** $\angle B = 75.78°$ **c)** $\angle C = 61.81°$
**4.** BC = 17 cm, AB = 20 cm, $\angle A = 60°$
**5. a)** 9.4 m **b)** 32° **c)** 58°
**6.** $\angle A = 73°$, BC = 13.1 m , AC = 13.7 m
**7.** 2.2 m
**8.** $x = 11.9$ m, $y = 8.3$ m

## BLM 1- Section 1.2 Solving Problems Using Trigonometric Ratios

**1. a)** The angle of elevation is the angle between the horizontal and the sight line from the observer's eye to some object above eye level.
**b)** The angle of depression is the angle between the horizontal and the sight line from the observer's eye to a point below eye level.
**2.** 66.4°
**3.** 81.5 m
**4.** 53 m
**5.** 187 m
**6.** 104.3 m
**7.** 23 m
**8.** 1150 m
**9.** 46.5 m

## BLM 1-8 Section 1.3 The Sine Law

**1.** $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$ or $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$
**2. a)** 36.6° **b)** 52.4° **c)** 66.1°
**3. a)** 20.8 ft **b)** 50.2 m **c)** 27.6 cm
**4.** At least one angle in the triangle is needed to solve using
the sine law.
**5. a)** $\angle A = 51°$, $a = 17$ m, $c = 20$ m
**b)** $\angle E = 75°$, $d = 9$ ft, $f = 7$ ft
**c)** $\angle I = 78°$, $\angle H = 30°$, $i = 15$ cm
**6.** 47 in.
**7.** 52.6 m
**8. a)** 27.4 m **b)** 14.3 m
**9.** $b = 28$ ft, $c = 20$ ft
**10. a), b)** $x = 10.4$
**c)** Since sin 90° = 1, the two methods reduce to the same equation: $x = \frac{8}{\sin 50°}$.

## BLM 1-10 Section 1.4 The Cosine Law

**1.** $a^2 = b^2 + c^2 - 2bc \cos A$, $b^2 = a^2 + c^2 - 2ac \cos B$, $c^2 = a^2 + b^2 - 2ab \cos C$
**2.** $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$, $\cos B = \frac{a^2 + c^2 - b^2}{2ac}$, $\cos C = \frac{a^2 + b^2 - c^2}{2ab}$,
**3. a)** $\angle C = 39°$ **b)** $\angle D = 61°$ **c)** $\angle K = 77°$
**4. a)** $b = 34.9$ ft **b)** $d = 13.9$ ft **c)** $y = 6.5$ in
**5.** $\angle B = 83°$, $\angle C = 45°$, $a = 20.8$ cm
**6.** $\angle A = 73.4°$, $\angle B = 48.2°$, $\angle C = 58.4°$
**7.** 6.9 km
**8.** AC = 7.4 cm, BD = 11.8 cm

## BLM 1-12 Section 1.5 Make Decisions Using Trigonometry

**1. a)** cosine law
**b)** sine law
**c)** primary trigonometric ratios
**2.** first hotel: 472 m; second hotel: 430 m
**3. a)** Jayveer: 693 m; Seema: 191 m **b)** 151 m
**4.** 75 m
**5.** 21.8 cm
**6.** 3902 m
**7.** 24.6 m

## BLM 1-15 Chapter Review

**1. a)** $\angle R = 25°$, QR = 15.4 ft, PQ = 6.5 ft
**b)** XY = 14.0 m, $\angle Z = 36°$, $\angle X = 54°$
**2.** $b = 77.1$ cm, $\angle B = 41.2°$, $\angle A = 48.8°$
**3.** 40.5 m
**4.** 5.3 km
**5.** Two angle measures and one side measure, or an angle measure and two side measures, provided one of the sides is opposite the given angle.
**6.** $\angle C = 84°$, $c = 19.1$ ft, $a = 10.8$ ft
**7.** 204 m
**8.** 66.9°, 53.6°, 59.5°
**9.** 118.4 m
**10.** Miami 64.8°, Bermuda 55.3°, Puerto Rico 59.9°
**11.** 60.5 m

## BLM 1-16 Practice Test

**1. a)** F **b)** T **c)** T **d)** T
**2.** C
**3.** B
**4.** no
**5.** $\angle A = 62.7°$, $\angle B = 27.3°$, AC = 103 yd
**6.** $\angle M = 57.8°$, $\angle L = 80.2°$, KM = 21.6 cm
**7. a)** $a = 15.6$ **b)** $e = 7.3$ cm **c)** $\angle I = 28.6°$
**8.** 9.6 ft
**9.** AC = 95 m, BC = 105 m
**10.** Boat 1: 7.7 km; Boat 2: 9.3 km
**11.** 285.5 m
**12.** 78.8 m
**13.** Simone's building: 13.2 m; other building: 33.9 m

## BLM 1-17 Chapter Test

**1. a)** T **b)** F **c)** F **d)** F
**2.** AC = 120 yd, $\angle B = 37°$, $\angle C = 53°$
**3.** XZ = 12.8 cm, $\angle Y = 53°$, $\angle Z = 51°$
**4. a)** $a = 17$ **b)** $e = 7$ cm **c)** $\angle Q = 37°$
**5.** yes
**6.** 8.9°
**7.** 12.6 km