## Practice 3-3 (1-17)

**1.** 125 **2.** 69 **3.** 143 **4.** 129 **5.** 140 **6.** 136
**7.** $x = 35; y = 145; z = 25$ **8.** $a = 55; b = 97; c = 83$
**9.** $v = 118; w = 37; t = 62$ **10.** 50 **11.** 88
**12.** $m\angle 3 = 22; m\angle 4 = 22; m\angle 5 = 88$ **13.** 57.1
**14.** 136 **15.** $m\angle 1 = 33; m\angle 2 = 52$ **16.** isosceles
**17.** obtuse scalene **18.** right scalene **19.** obtuse isosceles **20.** equiangular equilateral

## Practice 3-1 (1-16)

**1.** corresponding angles **2.** alternate interior angles
**3.** same-side interior angles **4.** alternate interior angles
**5.** same-side interior angles **6.** corresponding angles
**7.** $\angle 1$ and $\angle 5$, $\angle 2$ and $\angle 6$, $\angle 3$ and $\angle 8$, $\angle 4$ and $\angle 7$
**8.** $\angle 4$ and $\angle 6$, $\angle 3$ and $\angle 5$ **9.** $\angle 4$ and $\angle 5$, $\angle 3$ and $\angle 6$
**10.** $m\angle 1 = 100$, alternate interior angles; $m\angle 2 = 100$, corresponding angles or vertical angles **11.** $m\angle 1 = 75$, alternate interior angles; $m\angle 2 = 75$, vertical angles or corresponding angles **12.** $m\angle 1 = 135$, corresponding angles; $m\angle 2 = 135$, vertical angles **13.** $x = 103$; 77°, 103° **14.** $x = 24$; 12°, 168° **15.** $x = 30$; 85°, 85°
**16a.** Alternate Interior Angles Theorem **16b.** Vertical angles are congruent. **16c.** Transitive Property of Congruence

## Practice 2-4

**1.** $UT = MN$ **2.** $m\angle QWR = 30$ **3.** $SB = MN$ **4.** $y = 51$ **5.** $\overline{JL}$ **6.** Given; Addition Property of Equality; Division Property of Equality **7.** Given; Addition; Subtraction Property of Equality; Multiplication Property of Equality; Division Property of Equality **8.** Substitution **9.** Substitution **10.** Transitive Property of Equality **11.** Symmetric Property of Congruence **12.** Transitive Property of Congruence **13.** Definition of Complementary Angles; 90, Substitution; $3x$, Simplify; $3x$, 84, Subtraction Property of Equality; 28, Division Property of Equality **14.** Given; $(2x - 4)$, Substitution; $6x - 12$, Distributive Property; $-x$, Subtraction Property of Equality; 12, Multiplication Property of Equality

## Practice 3-2

**1a.** same-side interior **1b.** $\overleftrightarrow{QR}$ **1c.** $\overleftrightarrow{TS}$ **1d.** same-side interior **1e.** Same-Side Interior Angles **1f.** $\overleftrightarrow{TS}$ **1g.** 3-5 **2.** $l$ and $m$, Converse of Same-Side Interior Angles Theorem **3.** none **4.** $\overline{BC}$ and $\overline{AD}$, Converse of Same-Side Interior Angles Theorem **5.** $\overline{RT}$ and $\overline{HU}$, Converse of Corresponding Angles Postulate **6.** $\overline{BH}$ and $\overline{CI}$, Converse of Corresponding Angles Postulate **7.** $a$ and $b$, Converse of Same-Side Interior Angles Theorem **8.** 43 **9.** 90 **10.** 38 **11.** 100 **12.** 70 **13.** 48

## Practice 8-3

**1.** $\angle AXB \cong \angle RXQ$ because vertical angles are $\cong$. $\angle A \cong \angle R$ (Given). Therefore $\triangle AXB \sim \triangle RXQ$ by the AA $\sim$ Postulate. **2.** Because $\frac{MP}{LW} = \frac{PX}{WA} = \frac{XM}{AL} = \frac{3}{4}$, $\triangle MPX \sim \triangle LWA$ by the SSS $\sim$ Theorem. **3.** $\angle QMP \cong \angle AMB$ because vertical $\angle s$ are $\cong$. Then, because $\frac{QM}{AM} = \frac{PM}{BM} = \frac{2}{1}$, $\triangle QMP \sim \triangle AMB$ by the SAS $\sim$ Theorem. **4.** $\angle M \cong \angle A$ (Given). Because there are $180°$ in a triangle, $m\angle J = 130$, and $\angle J \cong \angle C$. So $\triangle MJN \sim \triangle ACB$ by the AA $\sim$ Postulate. **5.** Because $AX = BX$ and $CX = RX$, $\frac{AX}{CX} = \frac{BX}{RX}$. $\angle AXB \cong \angle CXR$ because vertical angles are $\cong$. Therefore $\triangle AXB \sim \triangle CXR$ by the SAS $\sim$ Theorem. **6.** Because $AB = BC = CA$ and $XY = YZ = ZX$, $\frac{AB}{XY} = \frac{BC}{YZ} = \frac{CA}{ZX}$. Then $\triangle ABC \sim \triangle XYZ$ by the SSS $\sim$ Theorem. **7.** $\frac{15}{2}$ **8.** $\frac{55}{4}$ **9.** $\frac{48}{7}$ **10.** $\frac{85}{3}$ **11.** $\frac{20}{3}$ **12.** 36 **13.** 33 ft

## Practice 8-4

**1.** 16 **2.** 8 **3.** $\sqrt{77}$ **4.** $2\sqrt{11}$ **5.** $10\sqrt{2}$ **6.** $6\sqrt{5}$ **7.** $h$ **8.** $y$ **9.** $x$ **10.** $a$ **11.** $b$ **12.** $c$ **13.** $x = 6; y = 6\sqrt{3}$ **14.** $x = 8\sqrt{3}; y = 4\sqrt{3}$ **15.** $\frac{40\sqrt{89}}{89}$ **16.** $\frac{9}{2}$ **17.** $x = 4\sqrt{5}; y = \sqrt{55}$ **18.** $x = \frac{45}{4}; y = \frac{75}{4}$ **19.** $x = \sqrt{3}; y = \sqrt{6}; z = \sqrt{2}$ **20.** $x = \frac{9}{5}; y = \frac{12}{5}; z = \frac{16}{5}$ **21.** $x = 8; y = 2\sqrt{2}; z = 6\sqrt{2}$ **22.** $2\sqrt{15}$ in.

# Practice 5-1

**1a.** 8 cm **1b.** 16 cm **1c.** 14 cm **2a.** 22.5 in.
**2b.** 15.5 in. **2c.** 15.5 in. **3a.** 9.5 cm **3b.** 17.5 cm
**3c.** 14.5 cm **4.** 17 **5.** 20.5 **6.** 7 **7.** $\frac{128}{19}$
**8.** 42 **9.** 16.5 **10a.** 18 **10b.** 61 **11.** $\overline{GH} \parallel \overline{AC}$, $\overline{HI} \parallel \overline{BA}, \overline{GI} \parallel \overline{BC}$ **12.** $\overline{PR} \parallel \overline{YZ}, \overline{PQ} \parallel \overline{XZ}$, $\overline{XY} \parallel \overline{RQ}$

# Practice 8-5

**1.** $BE$ **2.** $EH$ **3.** $BC$ **4.** $JD$ **5.** $\frac{JG}{JI}$
**6.** $BE$ **7.** $\frac{16}{3}$ **8.** 4 **9.** 4 **10.** $\frac{25}{2}$ **11.** $x = \frac{25}{9}$; $y = 4$ **12.** $\frac{15}{4}$ **13.** $x = \frac{65}{12}; y = \frac{91}{12}$ **14.** $x = 6$; $y = 6$ **15.** $x = \frac{189}{5}; y = \frac{198}{5}$ **16.** 2 **17.** 4
**18.** 10