Chapter 8

Indicate the best answer by writing the appropriate letter.

1. The shorter leg of a 30°-60°-90° triangle has length 7. Find the length of the hypotenuse.

a. 14 **b.** $7\sqrt{2}$ **c.** $7\sqrt{3}$ **d.** $\sqrt{14}$

2. The altitude to the hypotenuse of a right triangle divides the hypotenuse into segments 25 cm and 30 cm long. How long is the altitude?

a. $15\sqrt{3}$ cm **b.** $15\sqrt{5}$ cm **c.** $5\sqrt{30}$ cm **d.** $5\sqrt{55}$ cm

3. The hypotenuse and one leg of a right triangle have lengths 61 and 11. Find the length of the other leg.

a. 36 **b.** $5\sqrt{2}$ **c.** 60 **d.** $\sqrt{3842}$

4. Each side of an equilateral triangle has length 12. Find the length of an altitude.

a. 6 **b.** 12 **c.** $6\sqrt{2}$ **d.** $6\sqrt{3}$

5. One side of a square has length s. Find the length of a diagonal.

a. $2\sqrt{s}$ **b.** $s\sqrt{2}$ **c.** $\frac{s}{2}\sqrt{3}$ **d.** $s\sqrt{3}$

6. What kind of triangle has sides of lengths 12, 13, and 18?

a. an obtuse triangle **b.** a right triangle
c. an acute triangle **d.** an impossibility

7. In $\triangle RST$, $m\angle S = 90$. What is the value of sin T?

a. $\frac{ST}{RT}$ **b.** $\frac{RS}{ST}$ **c.** $\frac{RS}{RT}$ **d.** $\frac{RT}{RS}$

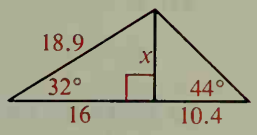
8. What is the geometric mean between 2 and 24?

a. 48 **b.** $16\sqrt{3}$ **c.** $4\sqrt{6}$ **d.** $4\sqrt{3}$

9. One acute angle of a certain right triangle has measure n. If $\sin n° = \frac{3}{5}$, what is the value of $\tan n°$?

a. $\frac{4}{3}$ **b.** $\frac{4}{5}$ **c.** $\frac{3}{4}$ **d.** $\frac{5}{3}$

10. Which equation could be used to find the value of x?



a. $\cos 58° = \frac{x}{18.9}$ **b.** $\sin 32° = \frac{x}{16}$

c. $\cos 44° = \frac{x}{10.4}$ **d.** $\tan 46° = \frac{x}{10.4}$

11. In rt. $\triangle ABC$, $\overline{AB} \perp \overline{BC}$, $\overline{BD} \perp \overline{AC}$ at point D, $BC = 9$, and $AC = 12$. Find the ratio of AD to DC.

a. $\frac{9}{16}$ **b.** $\frac{16}{9}$ **c.** $\frac{7}{9}$ **d.** $\frac{9}{7}$

12. For what value(s) of x is a triangle with sides of lengths x, $x + 7$, and $x + 8$ a right triangle?

a. $x = -7$ **b.** $x = 5$ **c.** $x = -7$ or $x = 5$ **d.** $-7 < x < 5$