7 Chapter 7 Test, Form 1C

Write the letter for the correct answer in the blank at the right of each problem.

1. If $\frac{a}{b} = \frac{x}{y}$, which of the following statements must be true? Assume that x and y are not zero.

    A. $ax = by$ **B.** $ab = xy$ **C.** $\frac{a}{y} = \frac{b}{x}$ **D.** $\frac{a}{x} = \frac{b}{y}$ 1. _____

For Questions 2–4, solve each proportion by using cross products.

2. $\frac{x}{16} = \frac{3}{4}$

    A. $\frac{3}{64}$ **B.** 12   **C.** 15   **D.** $21\frac{1}{3}$ 2. _____

3. $\frac{15}{45} = \frac{10}{x}$

    A. 3   **B.** $3\frac{1}{3}$ **C.** 30   **D.** 40   3. _____

4. $\frac{x}{x + 3} = \frac{2}{5}$

    A. 1   **B.** 2   **C.** 6   **D.** 15   4. _____

5. Twenty-four cans of soup cost \$28.80. How much do three cans of soup cost?

    A. \$3.60   **B.** \$2.50   **C.** \$1.20   **D.** \$0.40   5. _____
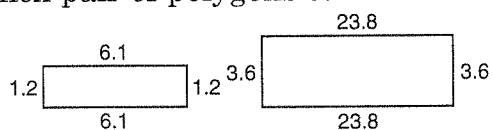
6. On a map of the United States, $1\frac{1}{2}$ in. represent 810 mi. If it is approximately $2\frac{1}{2}$ in. from Miami to Dallas on the map, what is the actual distance in miles?
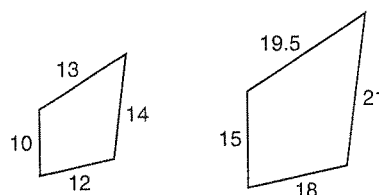
    A. 324   **B.** 486   **C.** 1350   **D.** 1620   6. _____
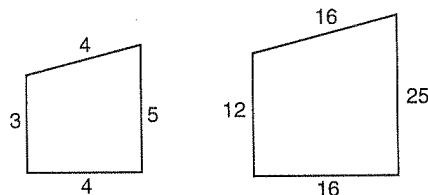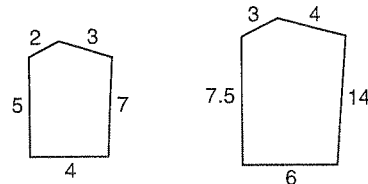
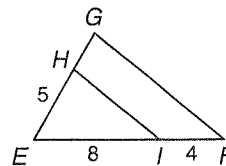7. Which pair of polygons could be similar?

    7. _____

8. In $\triangle EFG$, $\overline{HI} \parallel \overline{GF}$. If $EI = 8$, $IF = 4$, and $EH = 5$, find HG.

    A. 1   **B.** 2

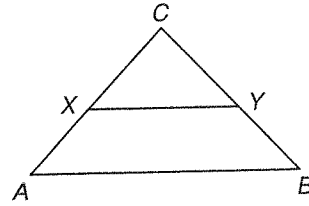   **C.** 2.5   **D.** 10

    8. _____

Geometry

9. If $\overline{AB} \parallel \overline{XY}$, which proportion must be true?
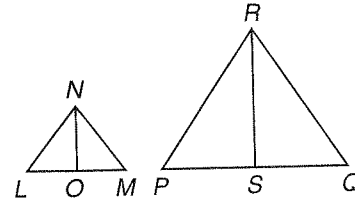
   A. $\dfrac{AX}{AC} = \dfrac{BY}{BC}$ **B.** $\dfrac{AX}{XC} = \dfrac{YC}{BY}$

   C. $\dfrac{CX}{BY} = \dfrac{CY}{AX}$ **D.** $\dfrac{XY}{AB} = \dfrac{AX}{CX}$

9. _____

10. In the figure at the right, $\triangle LMN \sim \triangle PQR$, $\overline{NO}$ is an altitude of $\triangle LMN$, and $\overline{RS}$ is an altitude of $\triangle PQR$. Which proportion must be true?
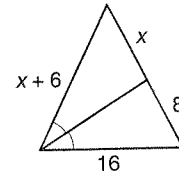
   A. $\dfrac{NO}{RS} = \dfrac{LM}{PQ}$ **B.** $\dfrac{NO}{RS} = \dfrac{LO}{SQ}$

   C. $\dfrac{LO}{QS} = \dfrac{MO}{PS}$ **D.** $\dfrac{NL}{LO} = \dfrac{RQ}{QS}$

10. _____

11. For the figure at the right, find the value of x.

   A. -2 **B.** -12

   C. 12 **D.** 6

11. _____

12. If $\triangle ABC \sim \triangle DEF$, m is the length of the median to $\overline{AC}$, and n is the length of the median to $\overline{DF}$, which proportion must be true?

   A. $\dfrac{BC}{EF} = \dfrac{m}{n}$ **B.** $\dfrac{AC}{n} = \dfrac{DE}{n}$ **C.** $\dfrac{n}{BC} = \dfrac{m}{EF}$ **D.** $\dfrac{m}{n} = \dfrac{DF}{AC}$

12. _____

13. A tree casts a shadow of 48 ft. Nancy, who is 5 ft tall, casts a shadow of 9 ft. About how tall is the tree?

   A. 86.4 ft   **B.** 44 ft   **C.** 36 ft   **D.** $26\frac{2}{3}$ ft

13. _____

14. Which of the following can be self-similar?

   A. a light bulb   **B.** an orange   **C.** a tree   **D.** none of these

14. _____

15. Find the sum of the first 30 numbers in the second diagonal of Pascal's triangle.

   A. 30   **B.** 435   **C.** 465   **D.** 2070

15. _____

Bonus

The measures of the angles of a triangle are in the ratio $1:5:6$. Which is not a measure of one of the angles?

   A. 12   **B.** 15   **C.** 75   **D.** 90

Bonus _____