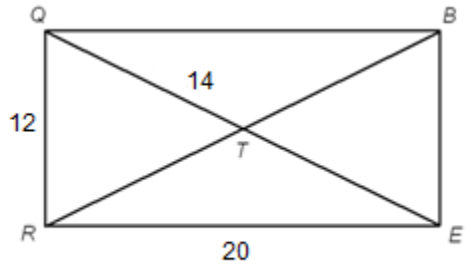
Name _____ Date _____ Period _____

DIRECTIONS: For #1-3, fill in the blanks with **always**, **sometimes**, or **never** to make the statements true.

1. Two squares are **ALWAYS** similar.
2. Two congruent parallelograms are **ALWAYS** similar.
3. An equilateral triangle and an isosceles triangle are **SOMETIMES** similar.

DIRECTIONS: For #4-10, write each ratio in its simplest form. Use the following diagram for #4-8.



Given: Quadrilateral $QBRE$ is a rectangle

4. $QB : BE$ **5 : 3**
5. $ET : EQ$ **1 : 2**
6. $ER : RQ$ **5 : 3**
7. $ER : RQ : QB$ **5 : 3 : 5**
8. $m\measuredangle QTB : m\measuredangle RTE$ **1 : 1**
9. 15 inches : 30 inches **1 : 2**
10. 6 mm : 5 cm **3 : 25**

DIRECTIONS: For #11, accurately complete the definition of similar polygons.

11. The definition of similar polygons has two parts. They are

a) corresponding angles are **congruent** AND

b) corresponding sides are **in the same ratio (proportional)** .

DIRECTIONS: For #12-15, solve for x. Show work.

12. $\frac{4x}{7} = \frac{24}{3}$ $x = 14$

13. $\frac{x-9}{6} = \frac{x}{4}$ $x = -18$

14. $\frac{4x-3}{3x+1} = \frac{6}{5}$ $x = 10.5$ or $10\frac{1}{2}$ or $\frac{21}{2}$

15. $\frac{x+1}{x-4} = \frac{x+3}{x-6}$ $x = 1.5$ or $1\frac{1}{2}$ or $\frac{3}{2}$

DIRECTIONS: For #16-18, solve the following problems. Write your answer in the provided blanks. Show all work.

16. The angles of a triangle are in a ratio of 3 : 4 : 8 . What is the measure of each angle?

36 48 96

17. The measures of two consecutive angles of a parallelogram are in the ratio of 17 : 3. Find the measure of each angle.

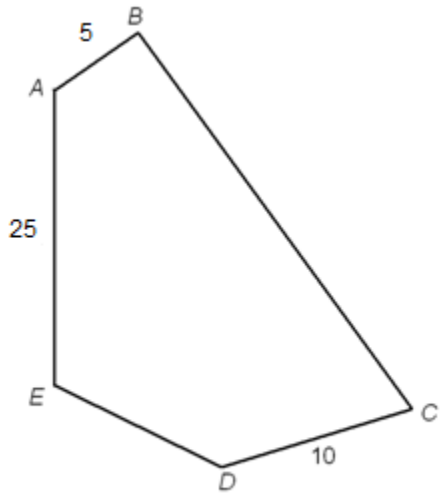
153 27

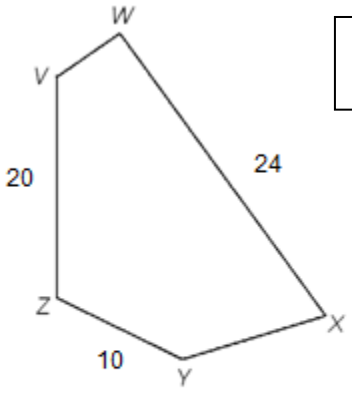
18. The angles of a pentagon are in a ratio of 4 : 5 : 8 : 9 : 10 . What is the measure of each angle?

60 75

120 135 150

DIRECTIONS: Use the following diagram to answer/solve #19-23. Show work when solving for segment lengths.





Given:
Pentagon $ABCDE \sim$ Pentagon $VWXYZ$

19. $m\measuredangle D = m\measuredangle$ **Y**

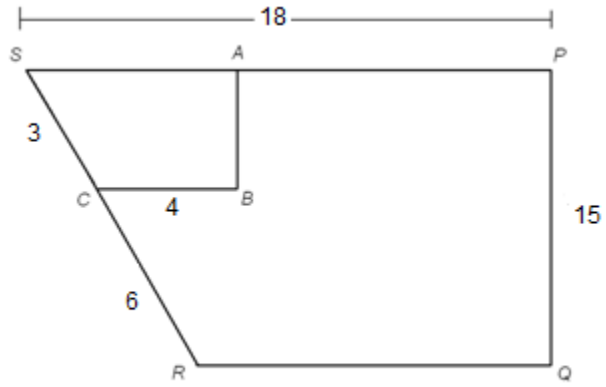
20. What is the scale factor of $ABCDE$ to $VWXYZ$? **5 : 4**

21. $DE =$ **12.5 or** $12\frac{1}{2}$

22. $XY =$ **8**

23. $BC =$ **30**

DIRECTIONS: Use the following diagram to answer/solve #24-27. Show work when solving for segment lengths.



Given:
Quadrilateral $PQRS \sim$ Quadrilateral $ABCS$

24. $AB =$ **5**

25. $SA =$ **6**

26. $AP =$ **12**

27. $RQ =$ **12**