NAME Key DATE _____ PERIOD _____

7-1 Practice

Proportions

1. **NUTRITION** One ounce of cheddar cheese contains 9 grams of fat. Six of the grams of fat are saturated fats. Find the ratio of saturated fats to total fat in an ounce of cheese.

2:3

2. **FARMING** The ratio of goats to sheep at a university research farm is 4:7. The number of sheep at the farm is 28. What is the number of goats?

16 4:7 G:S $\frac{4}{7} = \frac{G}{28}$

3. **ART** Edward Hopper's oil on canvas painting *Nighthawks* has a length of 60 inches and a width of 30 inches. A print of the original has a length of 2.5 inches. What is the width of the print?

1.25in

Solve each proportion.

4. $\frac{5}{8} = \frac{x}{12}$ $x = 7.5$

5. $\frac{x}{1.12} = \frac{1}{5}$ $x = 0.224$

6. $\frac{6x}{27} = \frac{4}{3}$ $x = 6$

7. $\frac{x+2}{3} = \frac{8}{9}$ $x = 2/3$

8. $\frac{3x-5}{4} = \frac{-5}{7}$ $x = 5/7$

9. $\frac{x-2}{4} = \frac{x+4}{2}$ $x = -10$

Find the measures of the sides of each triangle.

10. The ratio of the measures of the sides of a triangle is 3:4:6, and its perimeter is 104 feet.

24ft, 32ft, 48ft

11. The ratio of the measures of the sides of a triangle is 7:9:12, and its perimeter is 84 inches.

21in, 27in, 36in

12. The ratio of the measures of the sides of a triangle is 6:7:9, and its perimeter is 77 centimeters.

24.5in, 31.5in

21in, 24.5in, 31.5in

$6x + 7x + 9x = 77$

$x = 3.5$

Find the measures of the angles in each triangle.

13. The ratio of the measures of the angles is 4:5:6.

$4x + 5x + 6x = 180$

48°, 60°, 72°

14. The ratio of the measures of the angles is 5:7:8.

45°, 63°, 72°

15. **BRIDGES** The span of the Benjamin Franklin suspension bridge in Philadelphia, Pennsylvania, is 1750 feet. A model of the bridge has a span of 42 inches. What is the ratio of the span of the model to the span of the actual Benjamin Franklin Bridge?

1/500 $\frac{42}{21000} = \frac{1}{500}$

NAME Key DATE _____ PERIOD _____

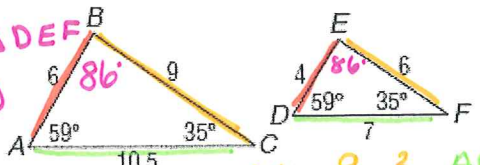
7-2 Skills Practice

Similar Polygons

Determine whether each pair of figures is similar. Justify your answer.

Yes!

1.



$\triangle ABC \sim \triangle DEF$

$\angle A \cong \angle D$

$\angle B \cong \angle E$

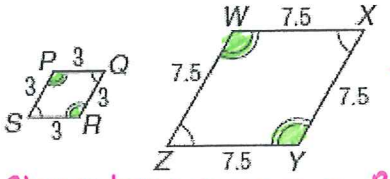
$\angle C \cong \angle F$

$\frac{AB}{DE} = \frac{6}{4} = \frac{3}{2}$ $\frac{BC}{EF} = \frac{9}{6} = \frac{3}{2}$ $\frac{AC}{DF} = \frac{10.5}{7} = 1.5$ ✓

Yes, b/c SLR are = and corr. ∠s are ≅

Yes!

2.



$\angle P \cong \angle W$

$\angle Q \cong \angle X$

$\angle R \cong \angle Y$

$\angle S \cong \angle Z$

Rhombus SPQR ~ Rhombus ZWXY

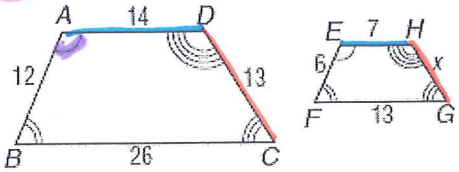
ALL SLR = $\frac{3}{7.5}$

Yes b/c all corr ∠s are ≅ and SLR are = .

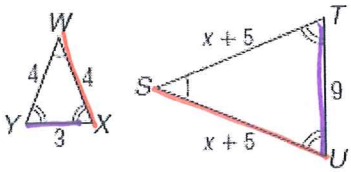
Each pair of polygons is similar. Write a similarity statement, and find x, the measure(s) of the indicated side(s), and the scale factor.

a b c d

3. $\overline{GH}$

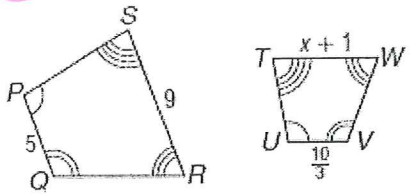


4. $\overline{ST}$ and $\overline{SU}$

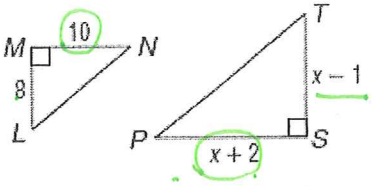


See work attached

5. $\overline{WT}$



6. $\overline{TS}$ and $\overline{SP}$



7. Triangle JKL is similar to $\triangle TUV$ with a scale factor of $\frac{3}{4}$. If the lengths of the sides of $\triangle TUV$ are 4, 6, and 8 centimeters, what are the lengths of the sides of $\triangle JKL$? 3, 4.5, 6

8. A triangle has side lengths of 3 meters, 5 meters, and 4 meters. The triangle is enlarged so that the larger triangle is similar to the original and the scale factor is 5. Find the perimeter of the larger triangle. $3 \cdot 5 + 5 \cdot 5 + 4 \cdot 5$

$\boxed{P = 60\text{m}}$

9. A rectangle with length 60 centimeters and height 40 centimeters is reduced so that the new rectangle is similar to the original and the scale factor is $\frac{1}{4}$. Find the length and width of the new rectangle.

$60 \cdot \frac{1}{4} \boxed{= 15\text{ cm}}$ Length

$40 \cdot \frac{1}{4} \boxed{= 10\text{ cm}}$ Width

7-2 Skills Practice

3.) a.) Sim. Statement
Quad ABCD ~ Quad EFGH

b.) Find x

$\frac{HG}{DC} = \frac{EH}{AD}$

$\frac{x}{13} = \frac{7}{14}$

$\boxed{x = 6.5}$

c.) INDICATED SIDE

$\boxed{GH = 6.5}$

d.) Scale Factor

$\frac{EH}{AD} = \frac{7}{14} = \frac{1}{2}$ or 2

4. a.) $\triangle XYW \sim \triangle UTS$

b.) $\frac{SU}{WX} = \frac{TU}{YX}$

$\frac{x+5}{4} = \frac{9}{3}$

$3(x+5) = 36$

$3x + 15 = 36$

$3x = 21$

$\boxed{x = 7}$

c.) ST and SU

$ST = 7 + 5$

$\boxed{ST = 12}$

$SU = 7 + 5$

$\boxed{SU = 12}$

d.) SF:

$\frac{TU}{YX} = \frac{9}{3} = 3$

or $\frac{1}{3}$

5.) PQRS ~ UVWT

$x = 5$

$WT = 6$

$SF = 3/2 = 2/3$

6. $\triangle LMN \sim \triangle TSP$

$x = 13$

$TS = 12$ $SP = 15$

SF: $2/3$ or $3/2$