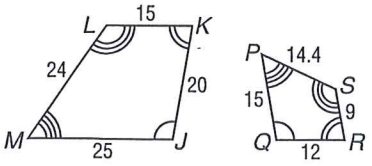
NAME Key DATE _____ PERIOD ____

6-2 Practice

Similar Polygons

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

1.



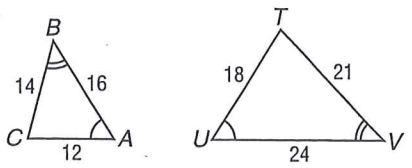
JKLM ~ QRSP

All ∠'s are ≅

$\frac{15}{9} = \frac{5}{3}$ $\frac{20}{12} = \frac{5}{3}$ $\frac{24}{14.4} = 1.67$ $\frac{25}{15} = \frac{5}{3}$

1.67 1.67 1.67

2.



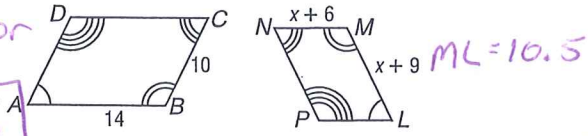
△ ABC ~ △UVT

All ∠'s are ≅

$\frac{16}{24} = \frac{2}{3}$ $\frac{12}{18} = \frac{2}{3}$ $\frac{14}{21} = \frac{2}{3}$

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.

3. $\overline{LM}$ and $\overline{MN}$



NM = 7.5

ML = 10.5

Scale factor

$\frac{14}{10.5} = 1.3$

$\frac{10}{14} = \frac{x+6}{x+9}$

$10(x+9) = 14(x+6)$

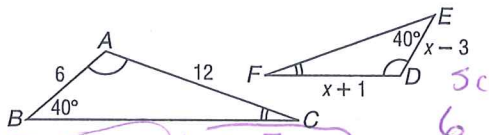
$10x + 90 = 14x + 84$

$6 = 4x$

$\frac{3}{2} = x$

$x = 1.5$

4. $\overline{DE}$ and $\overline{DF}$



$\frac{6}{x-3} = \frac{12}{x+1}$

$12(x-3) = 6(x+1)$

$12x - 36 = 6x + 6$

$6x = 42$

$x = 7$

FD = 8

DE = 4

Scale factor

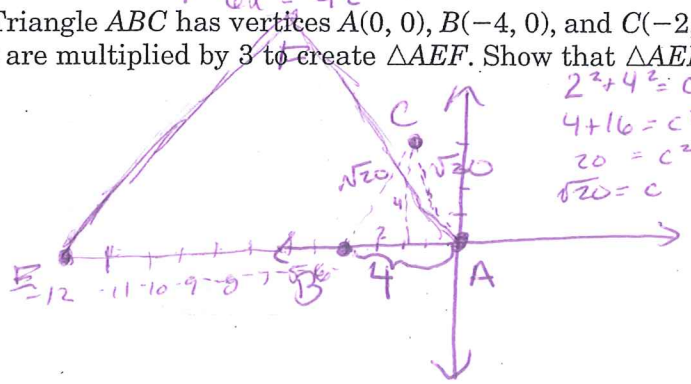
$\frac{6}{4} = \frac{3}{2} = 1.5$

5. COORDINATE GEOMETRY Triangle ABC has vertices $A(0, 0)$, $B(-4, 0)$, and $C(-2, 4)$. The coordinates of each vertex are multiplied by 3 to create $\triangle AEF$. Show that $\triangle AEF$ is similar to $\triangle ABC$.

AB = 4 BC = $\sqrt{20}$ CA = $\sqrt{20}$

AE = 12 EF = $3\sqrt{20}$ FA = $3\sqrt{20}$

Scale factor of 3



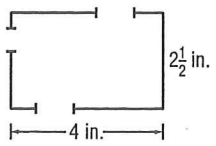
$2^2 + 4^2 = c^2$

$4 + 16 = c^2$

$20 = c^2$

$\sqrt{20} = c$

6. INTERIOR DESIGN Graham used the scale drawing of his living room to decide where to place furniture. Find the dimensions of the living room if the scale in the drawing is 1 inch = 4.5 feet.



$\frac{1}{4.5} = \frac{4}{x}$ $\frac{1}{4.5} = \frac{2.5}{y}$

$x = 4.4.5$

$x = 18$

$y = 2.5 \cdot 4.5$

$y = 11.25$

18 ft by 11.25 ft.