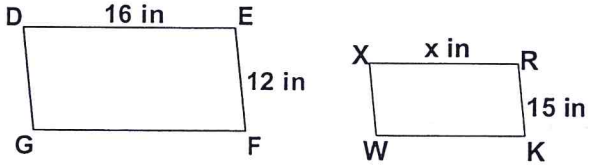
Name Schlansky
Mr. Schlansky

Date _____
Geometry

Similar Polygons

1. Parallelogram DEFG is similar to parallelogram XRKW. Find x.



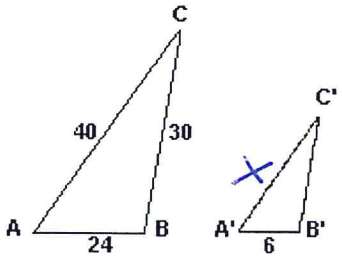
$\frac{16}{x}=\frac{12}{15}$

$12x=240$

$\frac{12x}{12}=\frac{240}{12}$

$x=20$

2. In the diagram, ΔABC is similar to $\Delta A'B'C'$, $AB = 24$, $BC = 30$, and $CA = 40$. If the shortest side of $\Delta A'B'C'$ is 6, find the length of the longest side of $\Delta A'B'C'$.

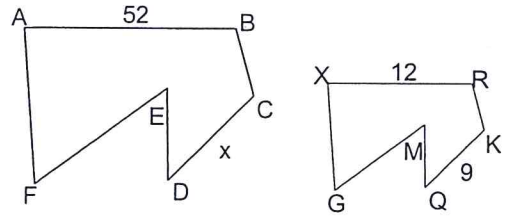


$\frac{40}{x}=\frac{24}{6}$

$\frac{24x}{24}=\frac{240}{24}$

$x=10$

3. Polygon ABCDEF is similar to polygon XRKQMG. Find x.



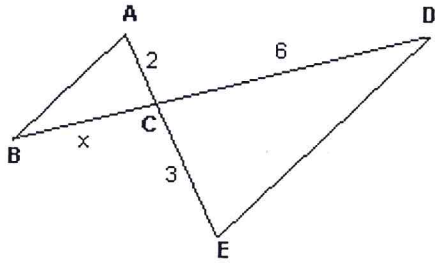
$\frac{52}{12}=\frac{x}{9}$

$12x=468$

$\frac{12x}{12}=\frac{468}{12}$

$x=39$

4. In the diagram below, $\overline{AB} \parallel \overline{DE}$. If $AC = 2$, $CD = 6$, and $CE = 3$, what is BC?



$\frac{2}{3}=\frac{x}{6}$

$\frac{3x}{3}=\frac{12}{3}$

$x=4$

5. The sides of a triangle are 8, 12, and 15. The longest side of a similar triangle is 18. What is the ratio of the perimeter of the smaller triangle to the perimeter of the larger triangle?

1) 2:3
2) 4:9
3) 5:6
4) 25:36

ROCS = ratio of perimeters

$\frac{15}{18} = \frac{5}{6}$

6. The sides of a triangle are 8, 12, and 15. The smallest side of a similar triangle is 12. What is the ratio of the area of the smaller triangle to the area of the larger triangle?

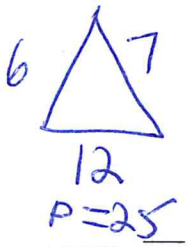
5) 2:3
6) 4:9
7) 5:6
8) 25:36

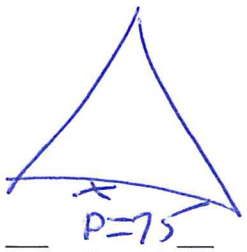
ROCS^2 = ratio of areas

$\left(\frac{8}{12}\right)^2 = \left(\frac{2}{3}\right)^2 = \frac{4}{9}$

7. Two triangles are similar. The sides of the smaller triangle have lengths of 6, 7, and 12. The perimeter of the larger triangle is 75. Find the length of the longest side of the larger triangle.

6+7+12
25



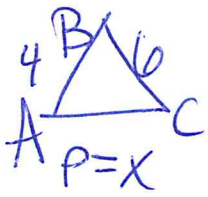


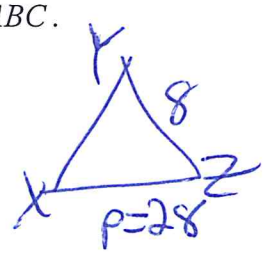
$\frac{12}{x} = \frac{25}{75}$

$\frac{25x}{25} = \frac{900}{25}$

$x = 36$

8. If $\Delta ABC \sim \Delta XYZ$, $\overline{AB} = 4$, $\overline{BC} = 6$, and $\overline{YZ} = 8$, and the perimeter of ΔXYZ is 28, find the perimeter of ΔABC.





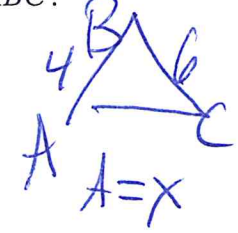
$\frac{6}{8} = \frac{x}{28}$

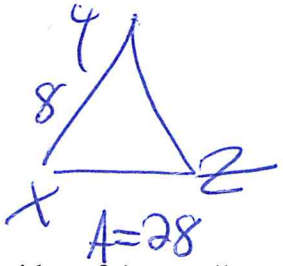
$\frac{8x}{8} = \frac{168}{8}$

$x = 21$

9. If $\Delta ABC \sim \Delta XYZ$, $\overline{AB} = 4$, $\overline{BC} = 6$, and $\overline{XY} = 8$, and the area of ΔXYZ is 28, find the area of ΔABC.

squared





$\left(\frac{4}{8}\right)^2 = \frac{x}{28}$

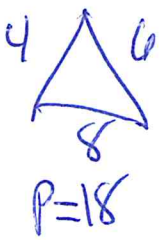
$\frac{16}{64} = \frac{x}{28}$

$\frac{64x}{64} = \frac{448}{64}$

$x = 7$

10. Two triangles are similar. The sides of the smaller triangle have lengths of 4, 6, and 8. The perimeter of the larger triangle is 27. Find the length of the shortest side of the triangle.

4+6+8
18



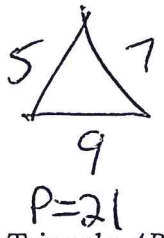
$\frac{4}{x} = \frac{18}{27}$

$\frac{18x}{18} = \frac{108}{18}$

$x = 6$

11. Two triangles are similar. The sides of the smaller one are 5 cm, 7 cm, and 9cm. If the perimeter of the larger triangle is 42cm, what is the measure of the largest side?

5+7+9
21



P=21

P=42

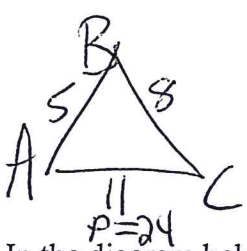
$\frac{9}{x} = \frac{21}{42}$

$\frac{21x}{21} = \frac{378}{21}$

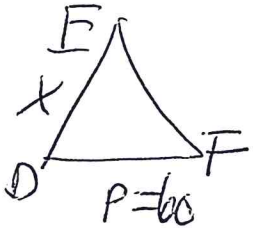
$x = 18$

12. Triangle ABC is similar to triangle DEF. The lengths of the sides of $\triangle ABC$ are 5, 8, and 11. What is the length of the shortest side of $\triangle DEF$ if its perimeter is 60?

5+8+11
24



P=24



P=60

$\frac{5}{x} = \frac{24}{60}$

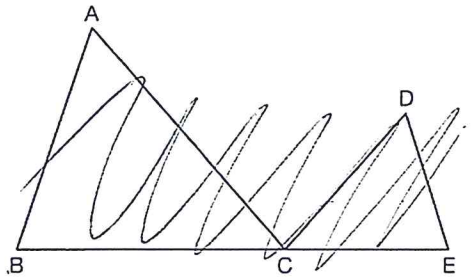
$\frac{24x}{24} = \frac{300}{24}$

$x = 12.5$

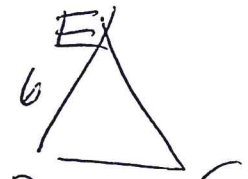
13. In the diagram below, $\triangle ABC \sim \triangle DEC$.

If $\overline{AC} = 10$, $\overline{AB} = 8$, $\overline{DE} = 6$ and the area of $\triangle ABC$ is 64, what is the area of $\triangle DEC$?

squared



A=64



A=x

$\left(\frac{8}{6}\right)^2 = \frac{64}{x}$

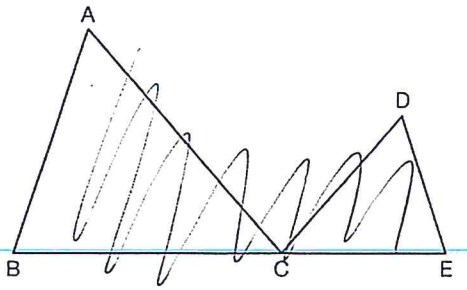
$\frac{64}{36} = \frac{64}{x}$

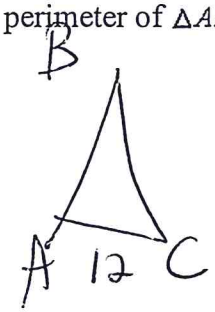
$\frac{64x}{64} = \frac{2304}{64}$

$x = 36$

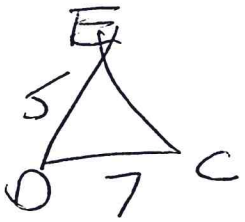
14. In the diagram below, $\triangle ABC \sim \triangle DEC$.

If $AC = 12$, $DC = 7$, $DE = 5$, and the perimeter of $\triangle ABC$ is 30, what is the perimeter of $\triangle DEC$?





P=30



P=x

$\frac{12}{7} = \frac{30}{x}$

$\frac{12x}{12} = \frac{210}{12}$

$x = 17.5$