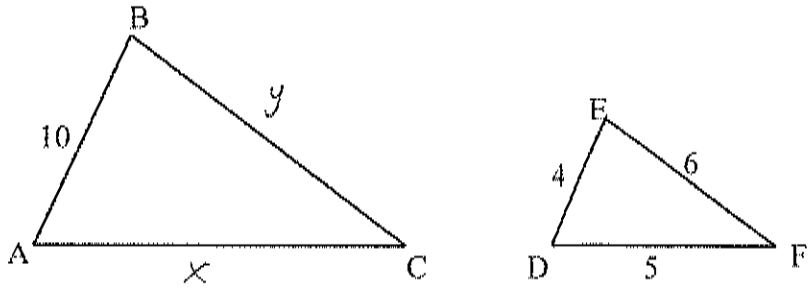
PERIMETER OF SIMILAR TRIANGLES

1) $\Delta ABC \sim \Delta DEF$



a) Find the missing sides of ΔABC.

$\frac{SM}{LG} = \frac{4}{10} = \frac{5}{x} = 4x = 50$

$x = 12.5$

$\frac{SM}{LG} = \frac{4}{10} = \frac{6}{y}$

$4y = 60$

$y = 15$

b) What is the scale factor?

$\frac{SM}{LG} = \frac{4}{10} = \frac{2}{5} = .4$

c) Find the perimeter of both triangles. Is the scale factor the same?

$P_{SM} = 4 + 5 + 6 = 15$

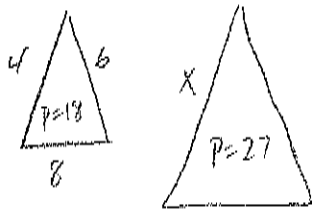
$P_{LG} = 10 + 12.5 + 15 = 37.5$

$\frac{15}{37.5} = .4$

Theorem on Ratio of Perimeters

the ratio of perimeters EQUALS the ratio of sides

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

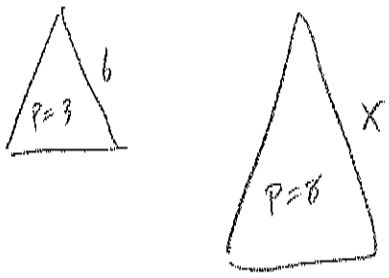


$\frac{SM}{LG} = \frac{4}{x} = \frac{18}{27}$

$18x = 108$

$\boxed{x = 6}$

3) The perimeter of two similar triangles are in the ratio 3 : 8. If the length of the largest side of the first triangle is 6 meters, find the length of the largest side of the second triangle.



$\frac{SM}{LG} = \frac{3}{8} = \frac{6}{x}$

$3x = 48$

$\boxed{x = 16}$