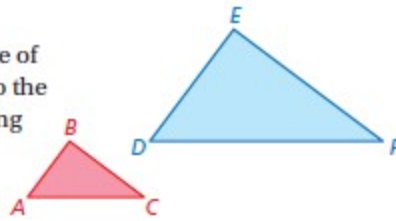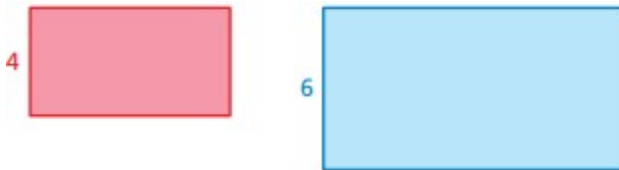## Perimeters of Similar Figures

When two figures are similar, the value of the ratio of their perimeters is equal to the value of the ratio of their corresponding side lengths.

$$\frac{\text{Perimeter of } \triangle ABC}{\text{Perimeter of } \triangle DEF} = \frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$$

Ex:) Find the value of the ratio (red to blue) of the perimeters of the similar rectangles.
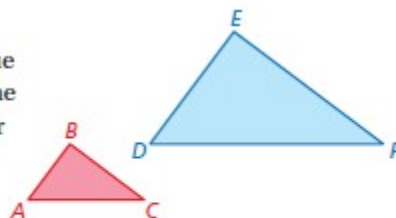
Notes:

OYO:) The height of Figure A is 9 feet. The height of a similar Figure B is 15 feet. What is the value of the ratio of the perimeter of A to the perimeter of B?
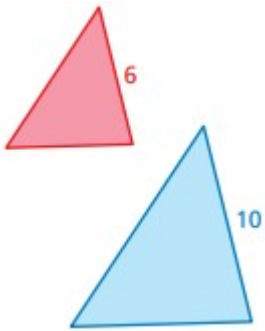
Notes:

Areas of Similar Figures

When two figures are similar, the value of the ratio of their areas is equal to the *square* of the value of the ratio of their corresponding side lengths.

$$\frac{\text{Area of } \triangle ABC}{\text{Area of } \triangle DEF} = \left(\frac{AB}{DE}\right)^2 = \left(\frac{BC}{EF}\right)^2 = \left(\frac{AC}{DF}\right)^2$$

Ex:) Find the value of the ratio (red to blue) of the areas of the similar triangles.   Notes:

OYO:) The base of Triangle P is 8 meters. The base of a similar Triangle Q is   Notes:
7 meters. What is the value of the ratio of the area of P to the area of Q?

Ex:) A swimming pool is similar in shape to a volleyball court.   Notes:
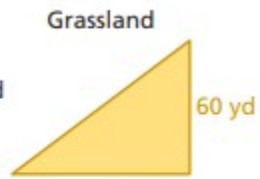Find the perimeter P and the area A of the pool.

18 yd

10 yd

Area = 200 yd²
Perimeter = 60 yd

Ex:) Two similar triangular regions are prepared for development.

Grassland   Forest

Grassland Perimeter = 240 yd

Grassland Area = 2400 yd^2

60 yd

45 yd

a. It costs $6 per foot to install fencing. How much does it cost to surround the forest with a fence?

b. The cost to prepare 1 square yard of grassland is $15 and the cost to prepare 1 square yard of forest is $25. Which region costs more to prepare? Justify your answer.

OYO:) You buy a new television with a screen similar in shape to your old television screen, but with an area four times greater. The size of a television screen is often described using the distance between opposite corners of the screen. Your old television has a 30-inch screen. What is the size of your new television screen? Explain.