Learning Outcomes Covered:
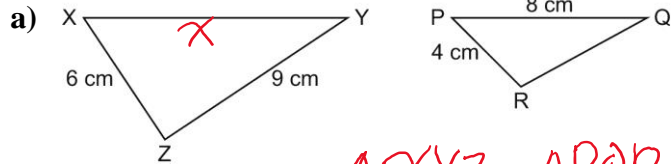**7F:** I can use similar triangles to solve problems.

CONTENT Assessment Questions:

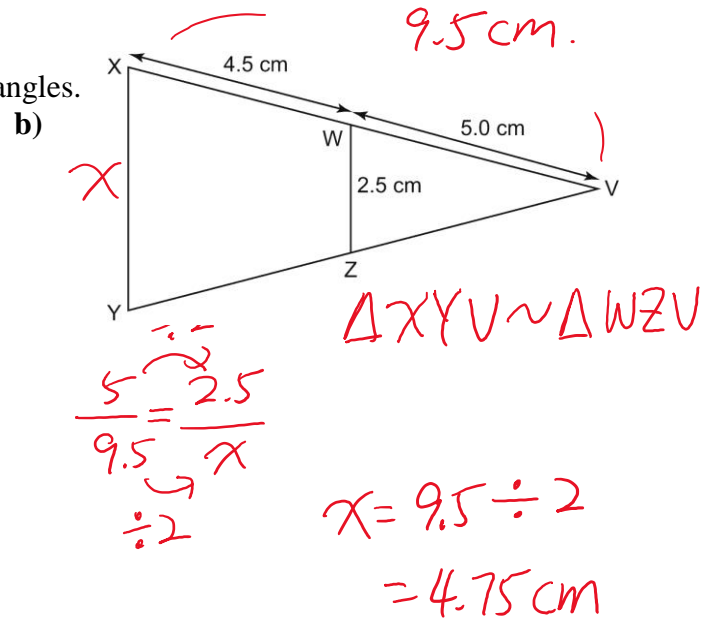1. Determine the length of XY in each pair of similar triangles.
    a) X ————————— Y   P ——8 cm—— Q   **b)**

    6 cm x 9 cm   4 cm
                                        R
                    Z

    9.5 cm.

    X ——4.5 cm——   W   5.0 cm
    x 2.5 cm   V
             Y   Z

    $\triangle XYZ \sim \triangle PQR$

    $\triangle XYV \sim \triangle WZV$

    $x \leftarrow$
    $\Rightarrow x$
    $\dfrac{6}{4} = \dfrac{x}{8}$
    $\times 2$
    $\boxed{x = 12 cm}$

    $\dfrac{5}{9.5} = \dfrac{2.5}{x}$
    $\div 2$

    $x = 9.5 \div 2$
    $= 4.75 cm$

2. A surveyor wants to determine the width of a river.
    She measures distances and angles on land,
    and sketches this diagram.
    What is the width of the river, PQ?

    P x Q
                          12 m
              RIVER   R
                          15 m
              T   20 m   S
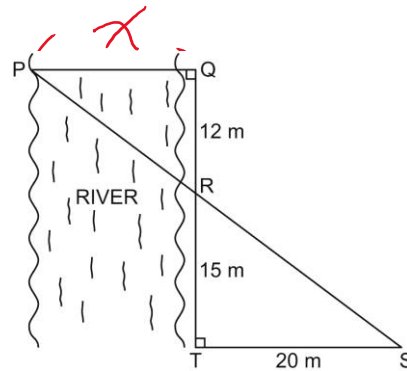
    $\triangle PQR \sim \triangle STR$

    $\dfrac{15}{12} = \dfrac{20}{x}$
    $\times 4$
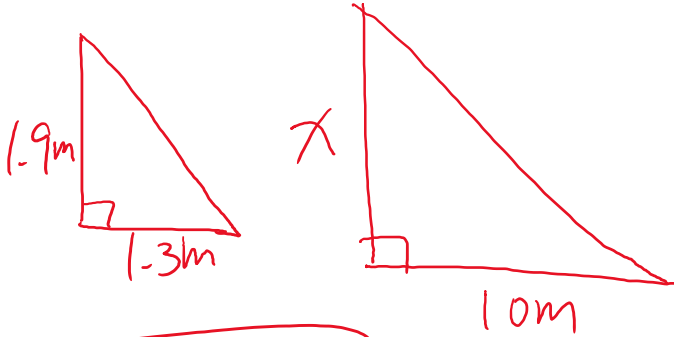 $\dfrac{5}{4} = \dfrac{20}{x}$
    $\times 4$

    $x = 4 \times 4$
    $= 16 m$

CURRICULAR COMPETENCIES Questions:

1. A person who is 1.9 m tall has a shadow that is 1.3 m long. At the same time, a flagpole has a shadow that is 10 m long. If you were standing on the roof of Burnaby North (which is 15 metres high), would you be looking up or down to see the top of the flagpole. Justify your answer with calculations and words.   (CmRp, CnRf)



$$\frac{10}{1.3} = \frac{x}{1.9}$$

$\div 1.46$

$$x = 10 \times 1.46$$
$$= 14.6 m$$

You will be looking down

2. A research team wishes to determine the altitude of a mountain as follows: They use a light source at "L", mounted on a structure of height 2 meters, to shine a beam of light through the top of a pole "P'" through the top of the mountain "M'". The height of the pole is 20 meters. The distance between the altitude of the mountain and the pole is 1000 meters. The distance between the pole and the laser is 10 meters. We assume that the light source mount, the pole and the altitude of the mountain are in the same plane. Find the altitude "h" of the mountain.   (US, CnRf)
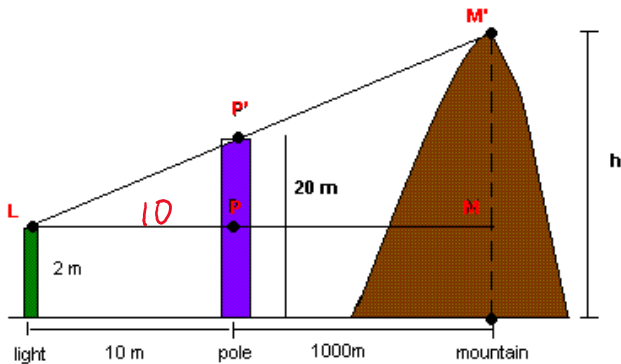
$$20 - 2 = 18$$
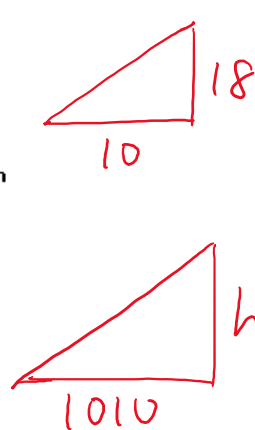
$$\frac{1010}{10} = \frac{h}{18}$$

$$h = 1010 \times 1.8$$
$$= 1818 m$$

ONGOING LEARNING ACTIVITIES:

CORE: Page 349: Curricular Competencies: 11, 13
                      Content: 6, 7, 9, 12
ADVANCED: Page 351: 14, 15