

DAY 5 - More Similar Triangles

Are the triangles similar? If so, write a similarity statement and the ratio proportion statement

1.

$\frac{10}{5} = \frac{4}{2} = \frac{8}{4}$

yes SSS

$\Delta LMN \sim \Delta FED$

2.

\therefore yes SAS

$\Delta ABC \sim \Delta DEF$

$\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$

3.

$180^\circ - 130^\circ - 30^\circ = 20^\circ$

\therefore Yes AAA

$\Delta IJK \sim \Delta WYX$

$\frac{IJ}{XY} = \frac{JK}{YW} = \frac{IK}{XW}$

4.

$\frac{12}{7} \neq \frac{8}{4}$

\therefore NO

5.

\therefore yes, same scale + same angle

$\Delta ABC \sim \Delta PQR$

$\frac{AB}{PQ} = \frac{BC}{QR} = \frac{AC}{PR}$

6.

$\Delta ABE \sim \Delta ADC$

Find the scale factor.

$\frac{AB}{AD} = \frac{BE}{DC} = \frac{AE}{AC} \rightarrow \frac{10}{x+y} = \frac{9}{15} = \frac{x}{17}$ (scale = 0.6 or 1.5)

Find the value of x.

$\frac{9}{15} = \frac{x}{17}$ $15x = 153$ $x = 10.2$

Find the value of y.

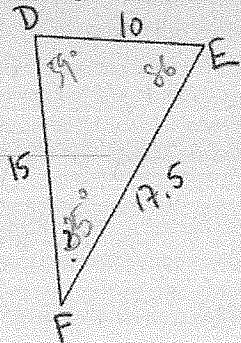
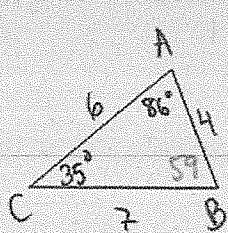
$\frac{10}{(10.2+y)} = \frac{9}{15}$

$150 = 9(10.2+y)$

$150 = 91.8 + 9y$

$58.2 = 9y$

7. Find the unknown angles if $\triangle ABC \approx \triangle EDF$

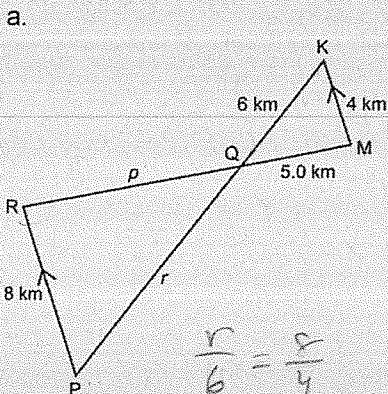


$$\angle B = 180 - 35 - 86 = 59^\circ$$

$$\begin{aligned} \angle C &= \angle F = 35^\circ \\ \angle B &= \angle D = 59^\circ \\ \angle A &= \angle E = 86^\circ \end{aligned}$$

3

8. Find the unknown sides



$$\triangle PQR \sim \triangle KQM$$

$$\frac{PQ}{KQ} = \frac{QR}{QM} = \frac{PR}{KM}$$

$$\frac{p}{4} = \frac{6}{5} = \frac{8}{r}$$

$$\frac{r}{6} = \frac{8}{4}$$

$$4r = 48$$

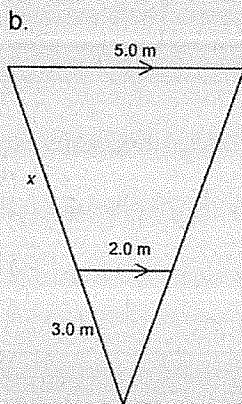
$$r = 12 \text{ km}$$

$$\frac{p}{5} = \frac{8}{4}$$

$$4p = 40$$

$$p = 10 \text{ km}$$

3



Big
Small

$$\frac{5}{2} = \frac{3+x}{3}$$

$$15 = 2(3+x)$$

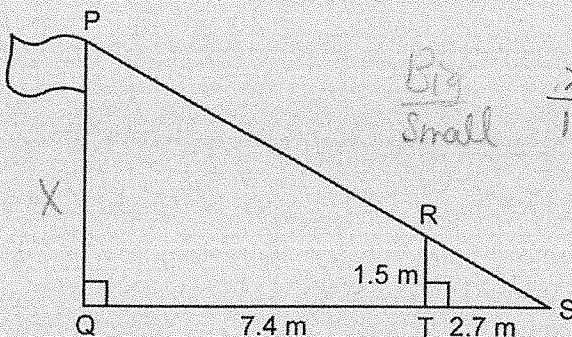
$$15 = 6 + 2x$$

$$9 = 2x$$

$$4.5 = x$$

2

9. The tips of the shadows of a flagpole and a 1.5-m fence post meet at the point S. The following lengths are measured: ST = 2.7 m and QT = 7.4 m. Use this information to find the height of the flagpole. Round your answer to the nearest tenth of a metre.



Big
Small

$$\frac{x}{1.5} = \frac{10.1}{2.7}$$

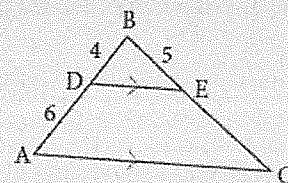
$$2.7x = 15.15$$

$$x = 5.6$$

Flagpole is 5.6 m tall

2

10. In the diagram, DE is parallel to AC. BD = 4, DA = 6, and BE = 5. Find the length of BC to the nearest tenth of a unit.



$$\triangle ABC \sim \triangle DBE$$

$$\frac{AB}{DB} = \frac{BC}{BE} = \frac{AC}{DE}$$

$$\frac{10}{4} = \frac{BC}{5} = \frac{AC}{DE}$$

$$50 = 4BC$$

$$12.5 = BC$$

3

13