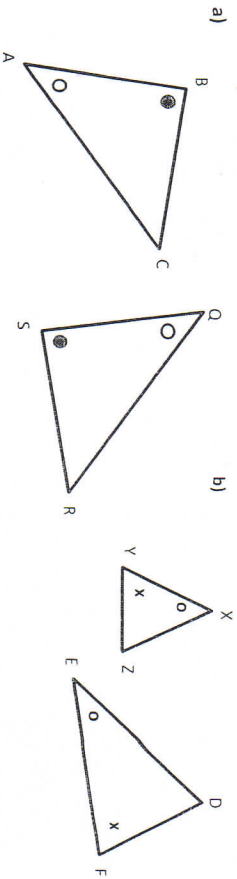


SIMILAR TRIANGLES & PYTHAGOREAN THEOREM – TEST REVIEW

Solutions

1. The following sets of triangles are similar. Name the corresponding similar triangle. Watch the order of the letters!



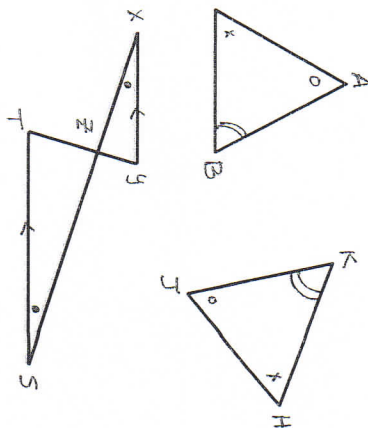
$$\triangle ABC \sim \triangle QSR$$

$$\triangle XYZ \sim \triangle FED$$

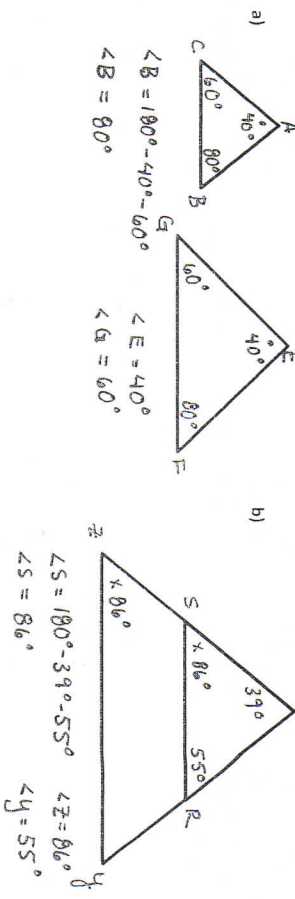
2. For the following similar triangles, complete the following statements:

- a)
- $\angle A$ corresponds to $\angle J$
 - $\angle B$ corresponds to $\angle K$
 - $\angle C$ corresponds to $\angle H$
 - Side CA corresponds to side $\underline{HJ}$
 - Side BC corresponds to side $\underline{KH}$
 - Side AB corresponds to side $\underline{JK}$

- b)
- $\angle X$ corresponds to $\angle S$
 - $\angle Y$ corresponds to $\angle T$
 - $\angle Z$ corresponds to $\angle Z$
 - Side ZX corresponds to side $\underline{ZS}$
 - Side YZ corresponds to side $\underline{TZ}$
 - Side XY corresponds to side $\underline{ST}$



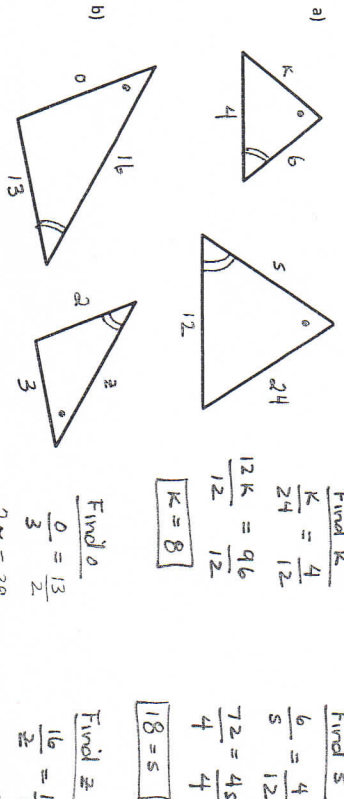
3. The triangles below are similar. Find the measures of the missing angles.



SIMILAR TRIANGLES & PYTHAGOREAN THEOREM – TEST REVIEW

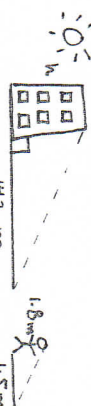
Solutions

4. The pairs of triangles below are similar. Find the measures of the missing sides.



5. The light rays of the sun are hitting both you and a nearby building at the same angle. The building casts a shadow of 142m and you cast a shadow of 1.5m. You are 1.8m tall. Similar Triangles!!

- a) Draw a diagram of the situation.



- b) How tall is the building rounded to ONE decimal place?

Let h represent the height of the building.

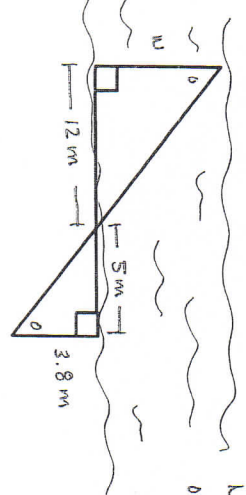
$$\frac{h}{1.8} = \frac{142}{1.5}$$

$$1.5h = 255.6$$

$$\frac{1.5}{1.5} = \frac{255.6}{1.5}$$

$$\therefore \text{height of building is } 170.4 \text{ m.}$$

6. Two students take measurements as shown to determine the width of the river. Find the width of the river.



Let w represent the width of the river.

$$\frac{w}{3.8} = \frac{12}{5}$$

$$5w = 45.6$$

$$\frac{5w}{5} = \frac{45.6}{5}$$

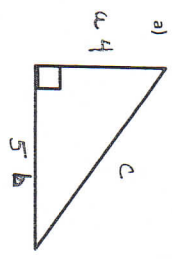
$$w = 9.12$$

$\therefore$ width of river is 9.12 m.

SIMILAR TRIANGLES & PYTHAGOREAN THEOREM – TEST REVIEW

SOLUTIONS

7. Use the Pythagorean Theorem to find the unknown sides of the triangles below. Be sure to round your FINAL answers to ONE decimal place if necessary.



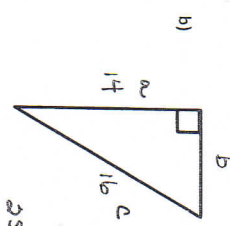
$$c^2 = a^2 + b^2$$

$$c^2 = (4)^2 + (5)^2$$

$$c^2 = 16 + 25$$

$$c^2 = 41$$

$$c = 6.4$$



$$c^2 = a^2 + b^2$$

$$(16)^2 = (14)^2 + b^2$$

$$256 = 196 + b^2$$

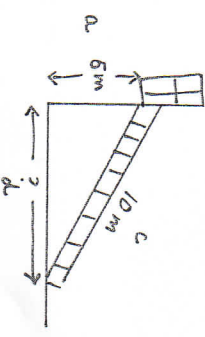
$$256 - 196 = b^2$$

$$60 = b^2$$

$$7.7 = b$$

8. Solve the following word problems. Each solution should include a diagram and a therefore statement. Round answers to 1 decimal place.

a) A 10m ladder leans against the side of a building. If the ladder reaches up to the bottom of a window which is 5m from the ground, how far is the base of the ladder from the wall?



Let d rep. the distance of the base of the ladder from the wall.

$$c^2 = a^2 + b^2$$

$$(10)^2 = (5)^2 + d^2$$

$$100 = 25 + d^2$$

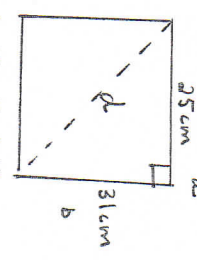
$$100 - 25 = d^2$$

$$75 = d^2$$

$$8.7 = d$$

∴ distance is 8.7m.

b) A television screen measures 25cm wide and 31cm high. What is the diagonal measure of the screen?



Let d rep. diagonal length.

$$d^2 = a^2 + b^2$$

$$d^2 = (25)^2 + (31)^2$$

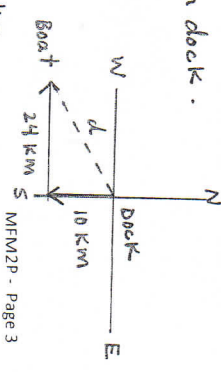
$$d^2 = 625 + 961$$

$$d^2 = 1586$$

$$d = 39.8$$

∴ length of diagonal is 39.8cm.

c) A boat leaves a dock and sails 10km south and then 24 km west. How far is the boat from the dock?



Let d. rep. distance of boat from dock.

$$c^2 = a^2 + b^2$$

$$d^2 = (10)^2 + (24)^2$$

$$d^2 = 100 + 576$$

$$d^2 = 676$$

$$d = 26$$

∴ distance is 26 km.