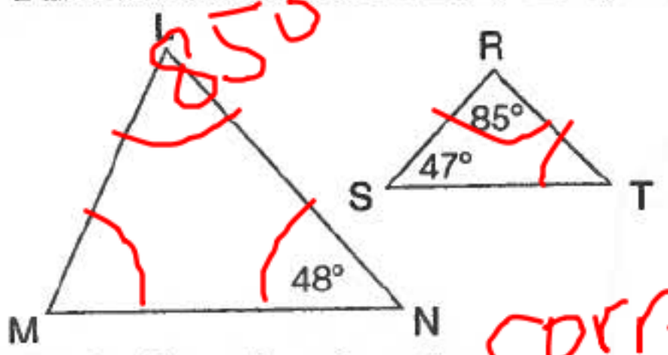
Name: _____ Feb. 27 Date: _____

Practise: Similar Triangles

Section 6.1

In geometry, the word *similar* has a particular meaning. Similar triangles have the same angles but not necessarily the same sides.

1. Find the measure of ∠L, ∠M, and ∠T given that ΔLMN ~ ΔRST.

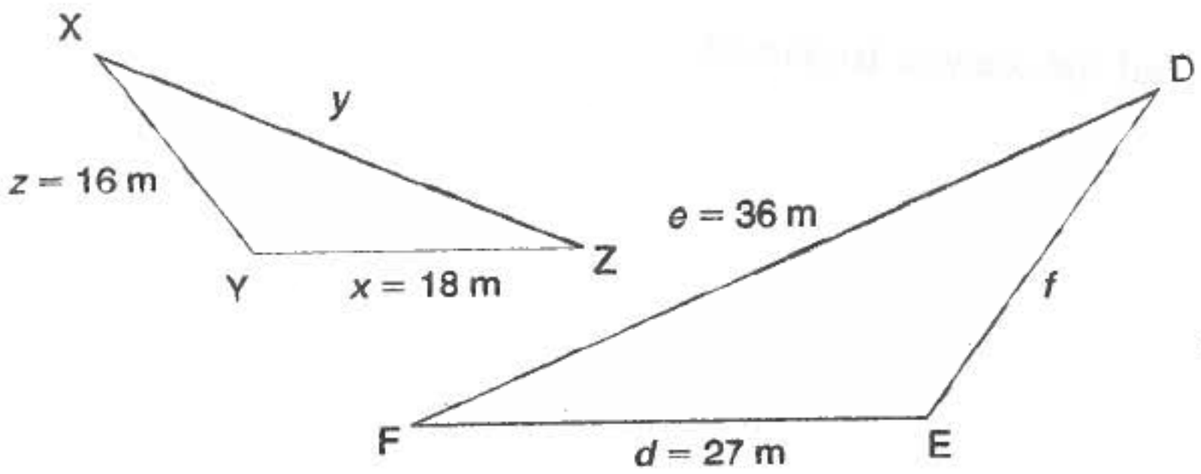


Hint
The ~ symbol means that two shapes are similar.

In similar triangles, the corresponding angles are equal.

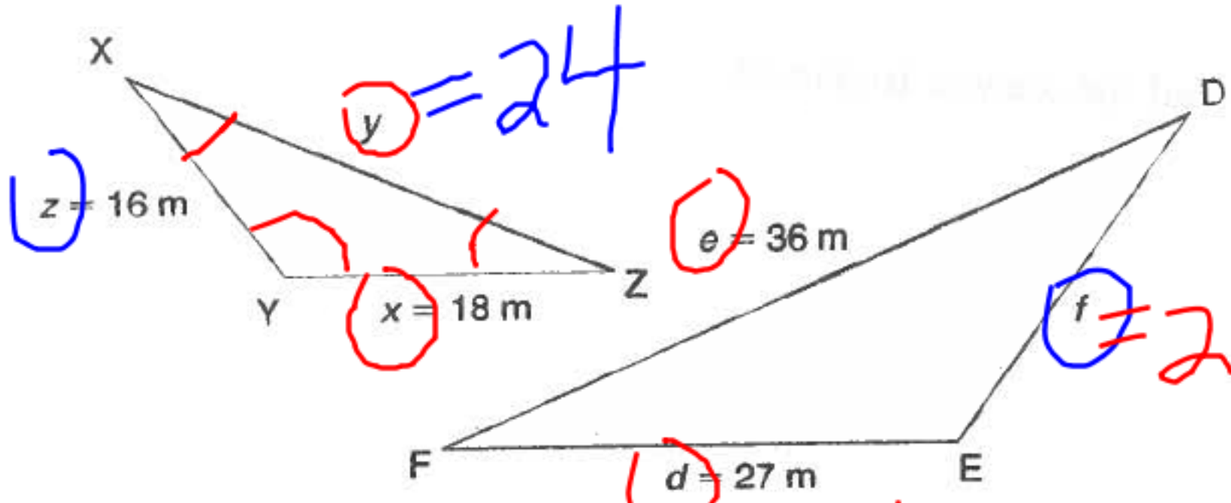
So, ∠L = ∠R = 85°, ∠M = ∠S = 47°, and ∠T = ∠N = 48°.

2. These two cottage lots are similar triangles. Find the lengths of sides *y* and *f*.



Hint
Remember that *x* represents the side opposite ∠X, *y* is opposite ∠Y, and so on.

2. These two cottage lots are similar triangles. Find the lengths of sides y and f.



Hint
Remember that x represents the side opposite $\angle X$, y is opposite $\angle Y$, and so on.

In similar triangles, the _____ sides are proportional.

Here, x corresponds to d, y corresponds to _____, and _____ corresponds to f.

Write the proportion: $\frac{x}{d} = \frac{y}{\square} = \frac{\square}{f}$

Substitute the known lengths: $\frac{18}{\square} = \frac{y}{\square} = \frac{\square}{f}$

$\frac{18}{\square} = \frac{y}{36}$ and $\frac{18}{\square} = \frac{16}{f}$

$\frac{18 \times 36}{\square} = y$

$\frac{\square}{\square} = y$

$f = 16 \times \frac{\square}{\square}$

$f = \frac{16 \times \square}{\square}$

$f = \frac{\square}{\square}$

Hint
The numerators are the side lengths of one triangle, and the denominators are the side lengths of the other triangle.

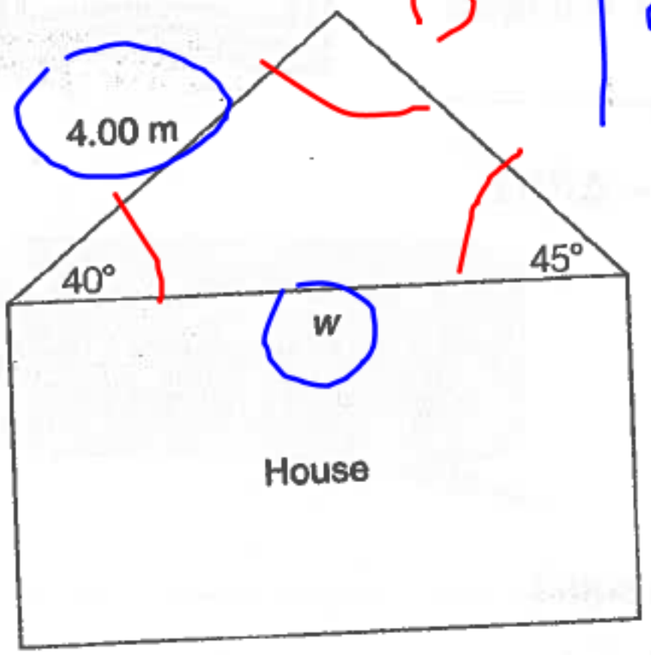
Hint
Remember to give the units in your concluding statement.

continued ....

Name: _____ Date: _____

Section 6.1

3. This house and garden shed were built with similar shapes.



a) Find the angle at the top of the roof of the house. Explain your reasoning.

b) Describe another way to find the answer to part a).

c) How wide is the house?

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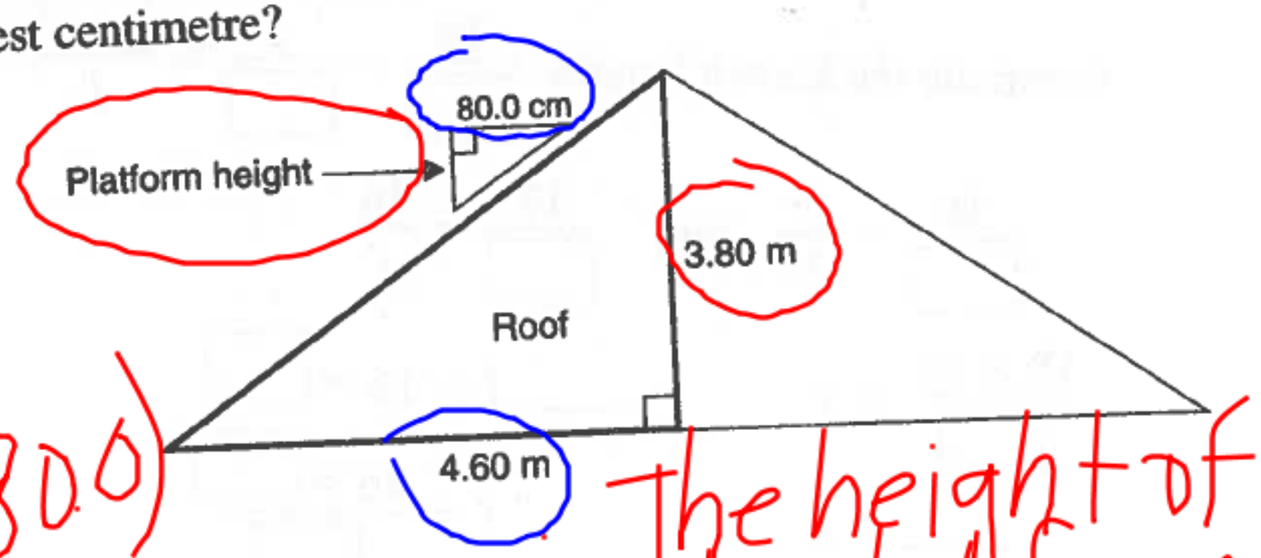
4. Gerald wants to build a platform so that he has a level surface to work on while shingling the roof shown below. For the platform to be level, the profiles of the platform and the roof must be similar triangles. How high should he make the platform, to the nearest centimetre?



$\frac{x}{3.80} = \frac{80.0}{4.60}$

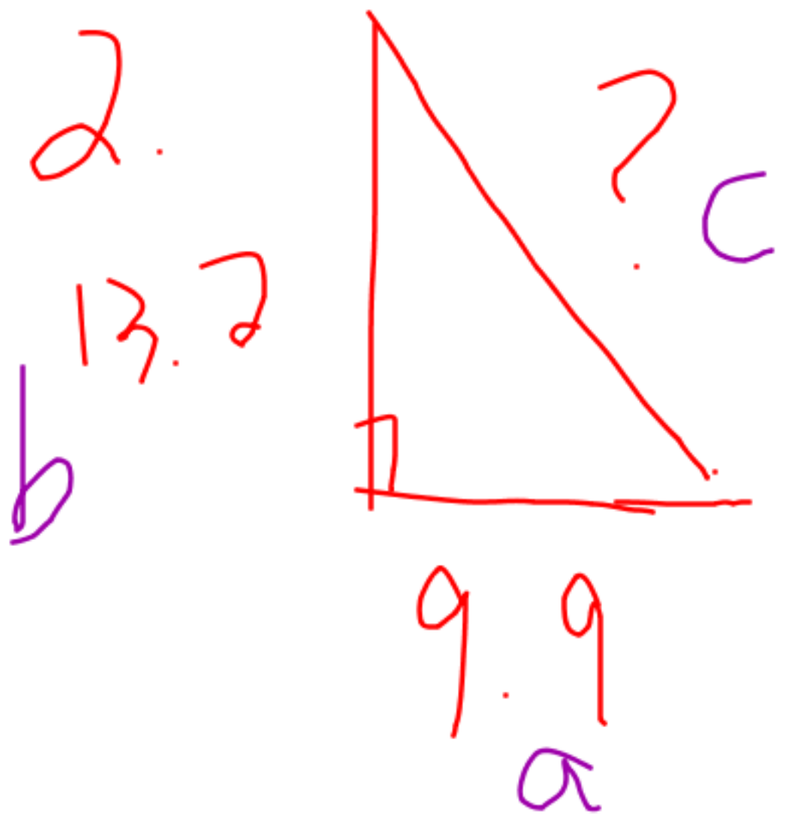
$(4.60)x = (3.80)(80.0)$

$\frac{(4.60)x}{4.6} = \frac{(3.80)(80.0)}{4.6}$

$x = 66.08 = 66.1\text{ cm}$

The height of the platform is 66.1 cm

2.



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

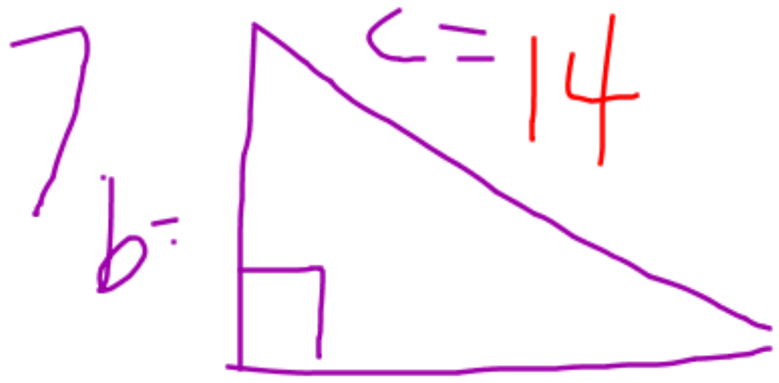
$9.9^2+13.2^2=c^2$

$98.01+174.24=c^2$

$272.25=c^2$

$\sqrt{272.25}=c$

$16.5=c$



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

$$-12^2 \quad -12^2$$

$$12^2+b^2=14^2$$

$$b^2=14^2-12^2$$

$$b^2=196-144$$

$$b^2=52$$

$$b=\sqrt{52}$$

$$b=7.21=\boxed{7.2}$$

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

$$4.4^2 + 11.7^2 = 12.5^2$$

$$19.36 + 136.89 \mid 156.25$$

$$156.25 \mid$$