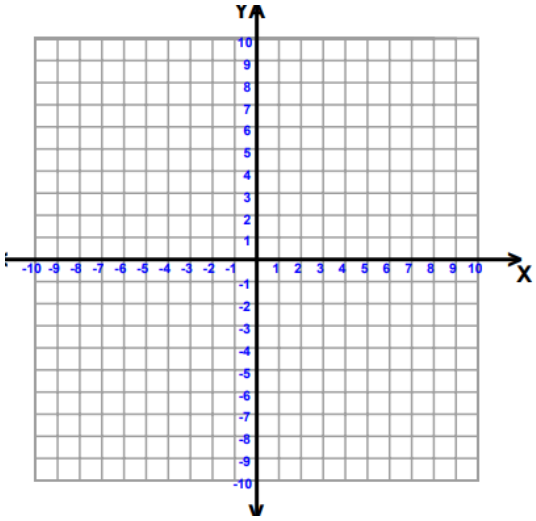
Name _____

Homework 1 – Linear graph and solving equations

Question 1

(a) Copy and complete the table for the line $y = 3x$

x	0	1	2	3
y = 3x				



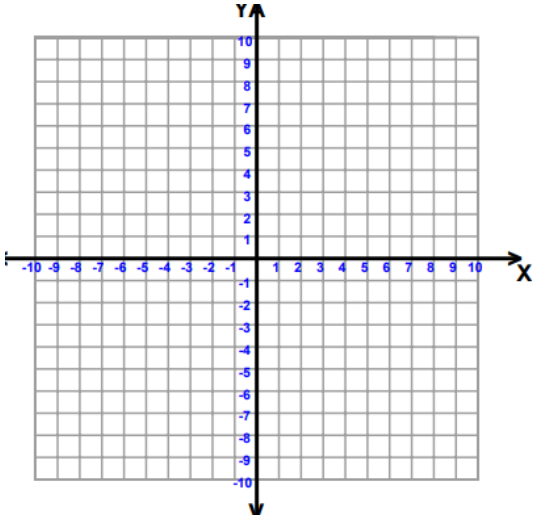
(b) Complete the list of coordinates: (0, …) (1, …) (2, …) (3, …)

(c) Plot the 4 points, join them up to show the line $y = 3x$.

Question 2

(a) Copy and complete the table for the line $y = 3x + 1$

x	0	1	2	3
y = 3x + 1				



(b) Complete the list of coordinates: (0, …) (1, …) (2, …) (3, …)

(c) Plot the 4 points, join them up to show the line $y = 3x + 1$.

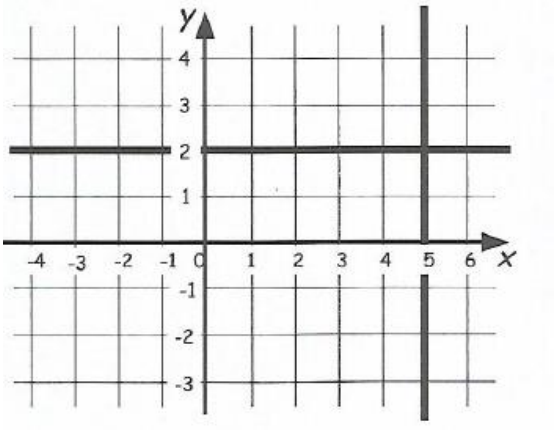
Question 3

For each of the lines shown in the diagrams:

(a) Write down 3 points on the line.

(b) State the equation of the line.

(c) Determine the coordinates of the point of intersection.



Name _____

Homework 2 – Solving Equations and inequalities

Question 1

Find the value of x by solving these equations:

(a) $x + 2 = 5$ (b) $x - 7 = 15$

Question 2

Find the value of x by solving these equations:

(a) $2x + 3 = 23$ (b) $7x - 2 = 19$

(c) $3x + 3 = 13$ (d) $6x - 9 = 21$

Question 3

Solve these equations by multiplying out the brackets:

(a) $2(x + 5) = 12$ (b) $3(x - 1) = 9$

(c) $7(x + 2) = 21$ (d) $4(x - 6) = 0$

Question 4

Find the value of x by solving these equations:

(a) $3x + 1 = 2x + 5$ (b) $4x - 1 = 3x + 7$

Question 5

Find the value of x by solving these inequalities:

(a) $7x + 2 < 16$ (b) $10x - 3 > 27$

Name _____

Homework 3 – Changing the subject and Pythagoras' theorem

Question 1

Change the subject of these formulae to (x):

(a) $x + w = p$ (b) $2a = r - x$

(c) $kx + f = e$ (d) $s = ux + q$

(e) $\frac{x+8}{5} = v$ (f) $\frac{2x-m}{n} = g$

Question 2

Find, without a calculator:

a 4^2 b 3^2 c 7^2 d 10^2

Question 3

In this question, you should use the $\sqrt{\ }$ button on your calculator to find :-

a $\sqrt{81}$ b $\sqrt{225}$ c $\sqrt{289}$ d $\sqrt{3600}$ e $\sqrt{1{\cdot}96}$.

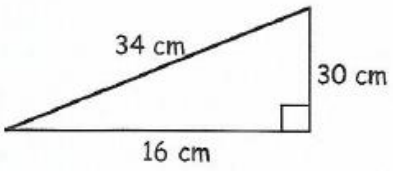
Question 4

The three sides of this right angled triangle are 16 cm, 30 cm and 34 cm.

a Write down the values of 16^2, 30^2 and 34^2.

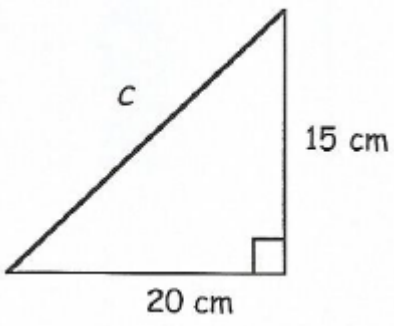
b Find the value of $16^2 + 30^2$.

c Check that $16^2 + 30^2 = 34^2$.



Question 5

Use Pythagoras' Rule to calculate the hypotenuse in each of these triangles :-



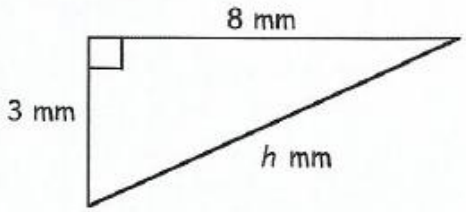
Name _____

Homework 4 – Pythagoras' theorem. Scale drawing.

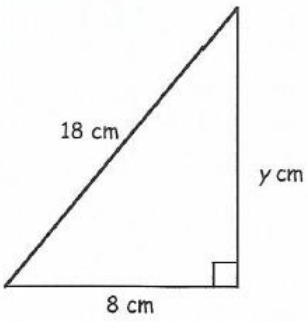
Question 1

Calculate the length of each side, **to two decimal places**. (Watch the units).

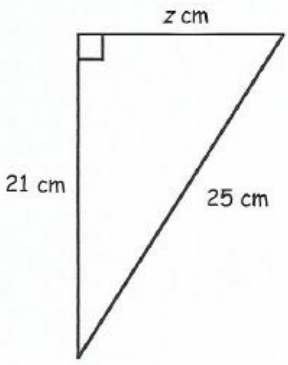
a



b



c



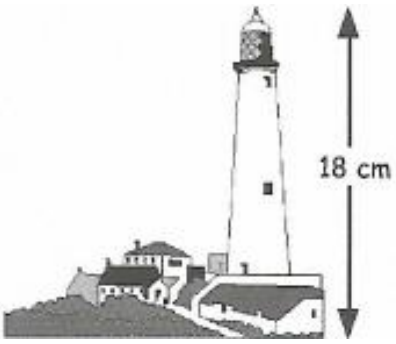
Question 2

When this lighthouse is drawn to a scale of :-

1 cm = 2·5 metres ,

its height is 18 cm.

Calculate the real height of the lighthouse.



Question 3

This door frame measures 150 centimetres by 90 centimetres.

Make a scale drawing of the door frame using a scale :-

1 cm represents 30 cm.

Name _____

Homework 5 – Scale factor. Circle Properties.

Question 1

Drawings are made of some objects. Calculate the heights of the objects in the drawings, given their **real heights** and scale factors :-

a A flagpole 8 metres high. (scale factor $\frac{1}{100}$) (i.e. 800 cm ÷ 100)

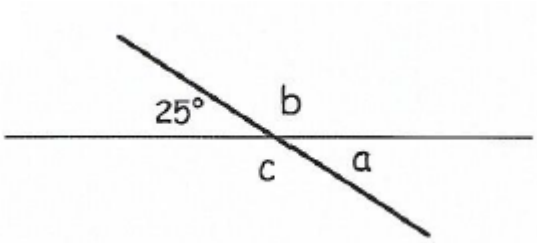
b A house 450 centimetres high. (scale factor $\frac{1}{50}$)

c A set of ladders 620 cm long. (scale factor $\frac{1}{200}$)

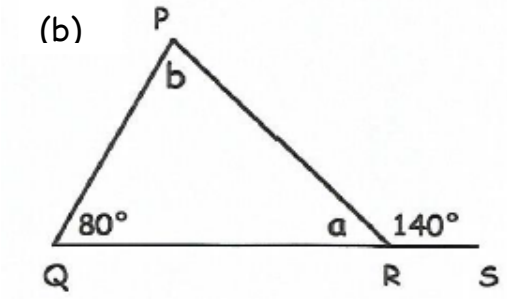
Question 2

Find the values of missing angles.

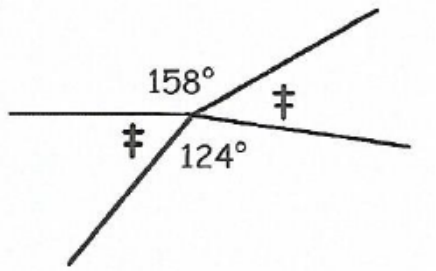
(a)



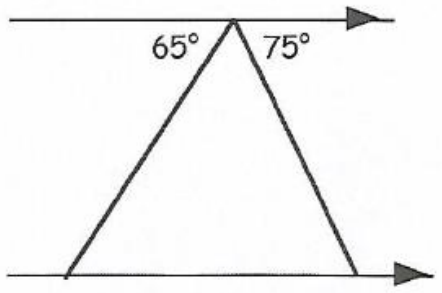
(b)



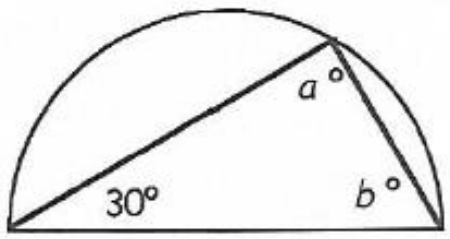
(c)



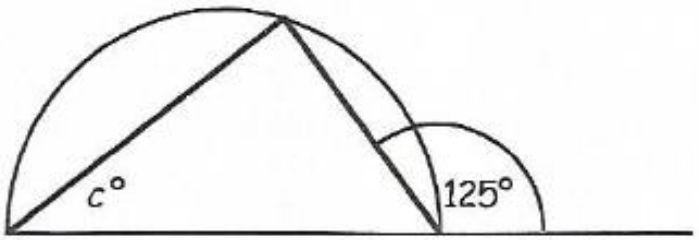
(d)



(e)



(f)



Name _____

Homework 6 – Trigonometry

Question 1

Use a scientific calculator to find the following tangents, sine and cosine. Round your answer to 3 decimal places.

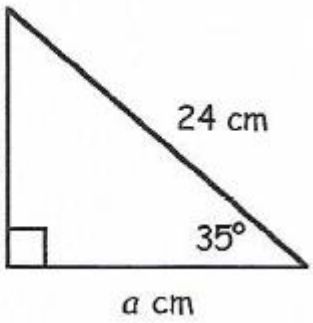
(a) sin 81° (b) sin 36.7 ° (c) cos 60 °

(d) cos 46 ° (e) tan 64 ° (f) tan 10 °.

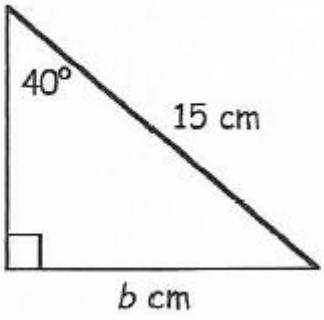
Question 2

Sketch each of these triangles and use your calculator to calculate the sizes of the angles (marked *a*, *b*, *c* and *d*) :-

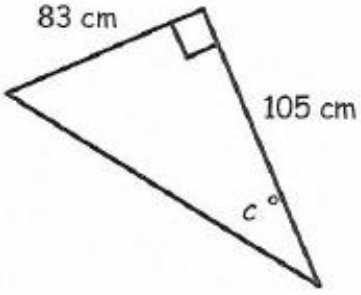
a



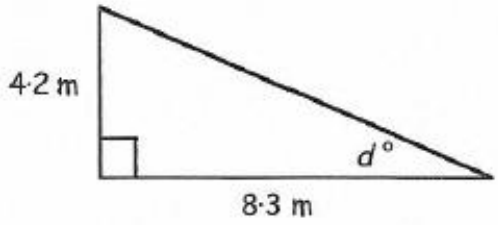
b



c



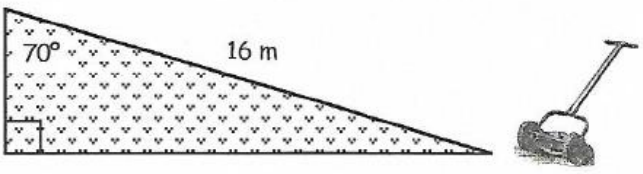
d



Question 3

A garden lawn is in the shape of a right angled triangle.

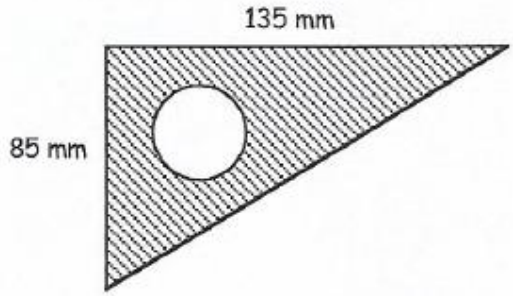
Calculate the lengths of the 2 shorter sides.



Name _____

Homework 7 – Trigonometry & Statistics

Question 1



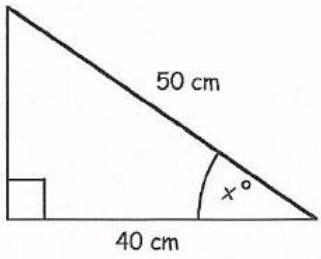
This metal bracket is in the shape of a right angled triangle.

Calculate the size of the **smallest** angle of the triangular bracket.

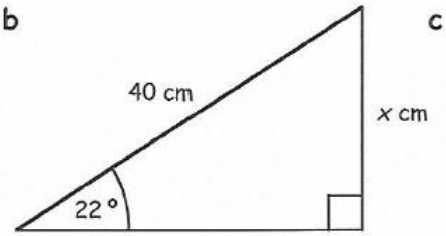
Question 2

For each diagram, **(i)** sketch the triangle, **(ii)** calculate x (*show all working*) :-

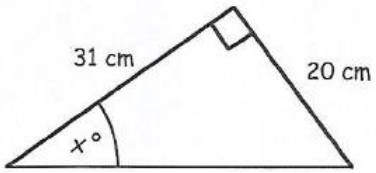
a



b



c



Question 3

This table shows the connection between the weights of a group of women and their dress sizes.

Weight (kg)	40	60	64	70	50	60	48	44	64	68	74	76	42	42	72
Dress size	6	12	14	18	10	14	8	10	16	16	16	20	6	8	16

a Neatly draw the set of axis showing weights from 40 kg to 80 kg and dress sizes from size 6 to size 20.

b Neatly plot the information about the 15 women in your graph.

c Draw the line of best fit, trying to have as many points above as there are below the line.

d From your line, estimate the **size of dress** worn by Millie who weighs 54 kilograms.