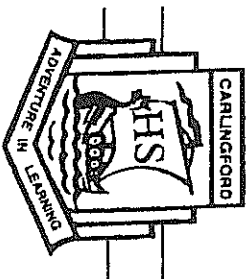# Carlingford High School

Mathematics

Year 9 Term 3 Examination
5.2 Course
2018

Name: _____   Class: _____

Circle your teacher's name: Mrs Lobejko   Mrs Lego   Ms Aung   Mr Wilson

Time allowed: 50 minutes

- Board approved calculators may be used.
- Show all necessary working.
- Marks may be deducted for careless or untidy work.
- Complete the examination in blue or black pen.

GEOMETRY	TRIGONOMETRY	TOTAL
/40	/22	/62 %

GEOMETRY (36 marks) 40

1. Write TRUE or FALSE   [6marks]

(a) A heptagon has six sides. _____

(b) Alternate angles are always equal _____

(c) Adjacent angles always have a
common arm _____

(d) Bisect means to cut into two unequal
parts _____

(e) A regular polygon must have at least
three equal sides _____

(f) A transversal is a line that intersects
with another line _____

2. From the list of quadrilaterals provided list the
quadrilateral(s) that have the following
properties:
                    [6marks]

| trapezium | square | kite |
| parallelogram | rhombus | rectangle |

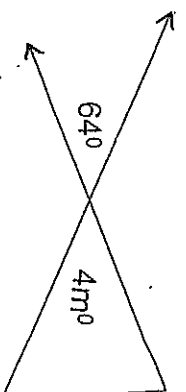(a) All sides equal _____

(b) Equal diagonals _____

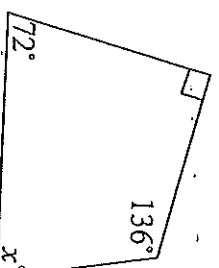(c) Both pairs of opposite sides parallel _____

(d) Perpendicular diagonals _____

3. Find the value of the pronumeral, writing
reasons.
                    [9marks]

(a)

64⁰   4m⁰

(b)

72°   136°   x°

(c)

A   50° C
B x°
147° D

(d)

6. The three triangles below are not drawn to scale.
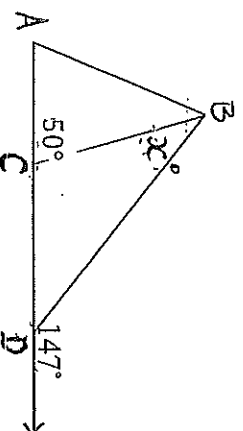

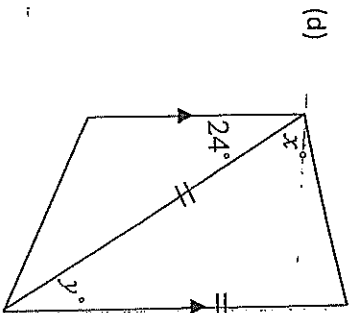
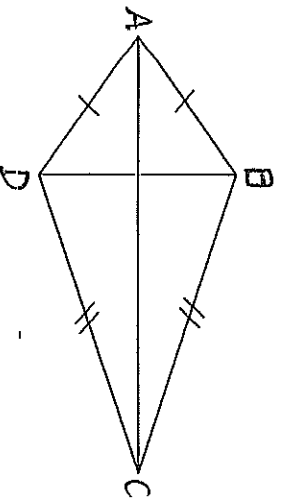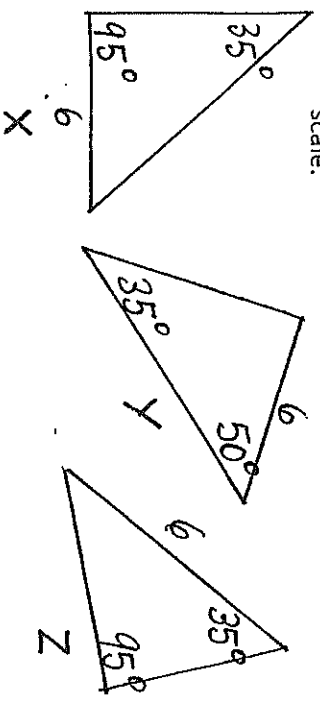Which two triangles are congruent and by what test?

[1mark]

4. List the four tests for Congruent Triangles.

[2marks]

5. State which test determines that

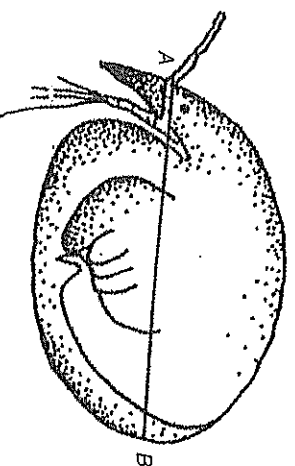$\triangle ABC \equiv \triangle ADC$ and write the reason.
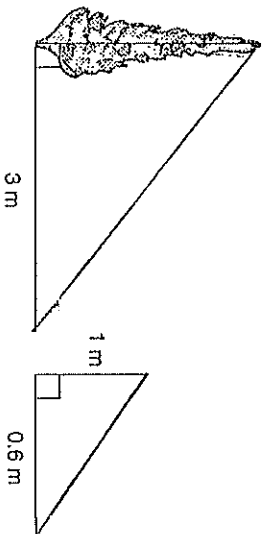
[2marks]

7. The tiny animal illustrated below, called a *chydorus*, lives in fresh–water ponds.

SCALE 160:1

In the diagram, *AB* is 48*mm* long. What is the actual length of the *chydorus*?

[1mark]

8. A tree casts a shadow 3 *metres* in length. At the same time a metre ruler casts a shadow 0.6 *metres* long.
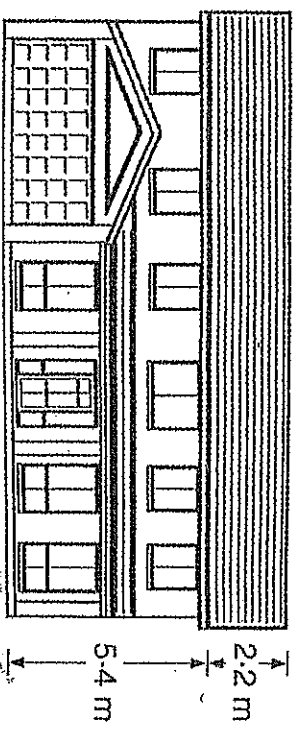
[2marks]

3 m

1 m

0.6 m

(a) Find the height of the tree.

(b) Circle the correct test for the Similar Triangles above:

■ Three pairs of matching angles equal.

■ Three pairs of matching sides in proportion.

■ Two pairs of matching sides in proportion and included angles equal.

9. The scale on a map is given as 1cm = 3km. If the distance between two points on the map is 2.7cm, find the actual distance between these two points.

[1mark]

10. By measurement, find the scale of the drawing.

[2marks]
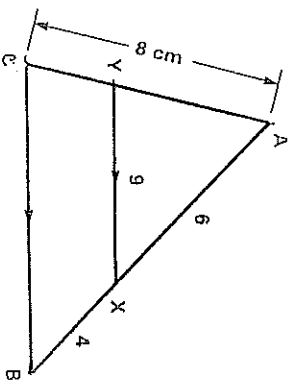

EAST ELEVATION

2·2 m

5·4 m

1 :

11. [4marks]

(a) Find the sum of the interior angles of a regular octagon.

(b) What is the size of one interior angle?
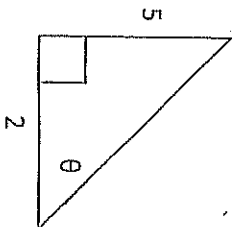
(c) What is the sum of the exterior angles of regular octagon?

(a) Name the matching side to YX

(b) Name the matching angle to $\angle AYX$

(c) Find the length of AY

TRIGONOMETRY (22 marks)

1. Given the triangle below, find the:

(a) length of the hypotenuse

[3marks]

(b) Value of $\tan\theta$

(c) Value of $\sin\theta$

2. Calculate correct to three decimal places.

[2marks]

(a) $\tan 72° =$

(b) $\sin 42.5° =$

3. Find the angle θ to the nearest degree.

[2marks]

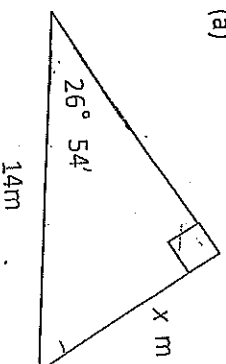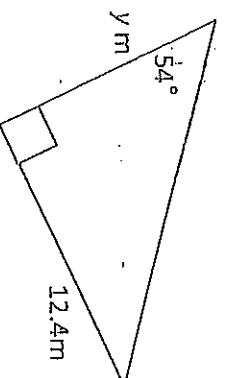(a) $\cos\theta = 0.6574$

(b) $\tan\theta = 10.34$

4. Find x given that $\sin 30° = \cos x°$ [1mark]

5. Find the value of the pronumeral in each triangle, correct to one decimal place.
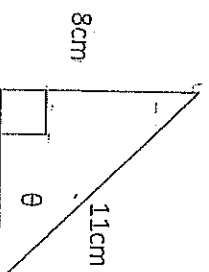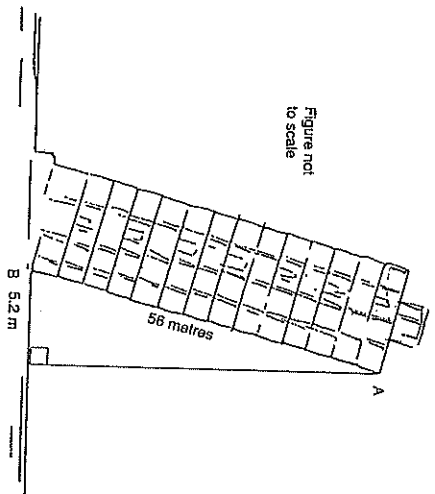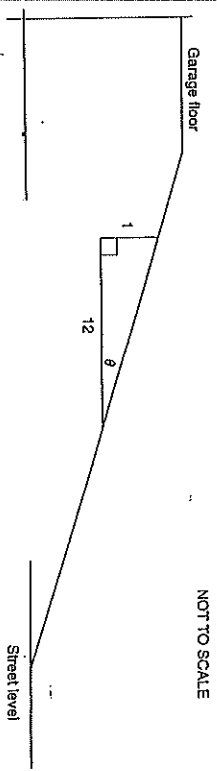   ·[4marks]

(a)

(b) –

6. Find the size of θ to the nearest degree.
   [2marks]

7. Calculate the angle the tower makes with the ground, giving your answer in degrees and minutes.

[2marks]

Figure not to scale

58 metres

B 5.2 m

A

8. Given the tringle ABC , mark a point D on AC such that BD is perpendicular bisector to AC.

If AC is 20cm and $\angle C = 50°$, find the length of BD to the nearest whole number.

[3marks]

A

B

C

9. A driveway has a gradient of 1 in 12 as shown in the diagram below.

[3marks]

NOT TO SCALE

Garage floor

1

12

θ

Street level

(a) Calculate the angle of inclination θ of the driveway, to the nearest degree.
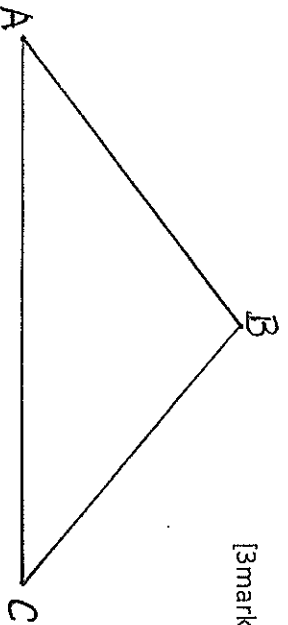
(b) If the driveway is 22m long, calculate the height of the garage floor above street level.

THE END