Student Name _____

Eastern Goldfields College
Mathematics Essential Unit 3 2017

Test 3

Working Time: 20 minutes **Marks: 18 marks**

Calculator Free (No notes or calculator allowed)

Question 1 (2 marks – 1,1)

Circle the correct answer in each of the following multiple-choice questions.

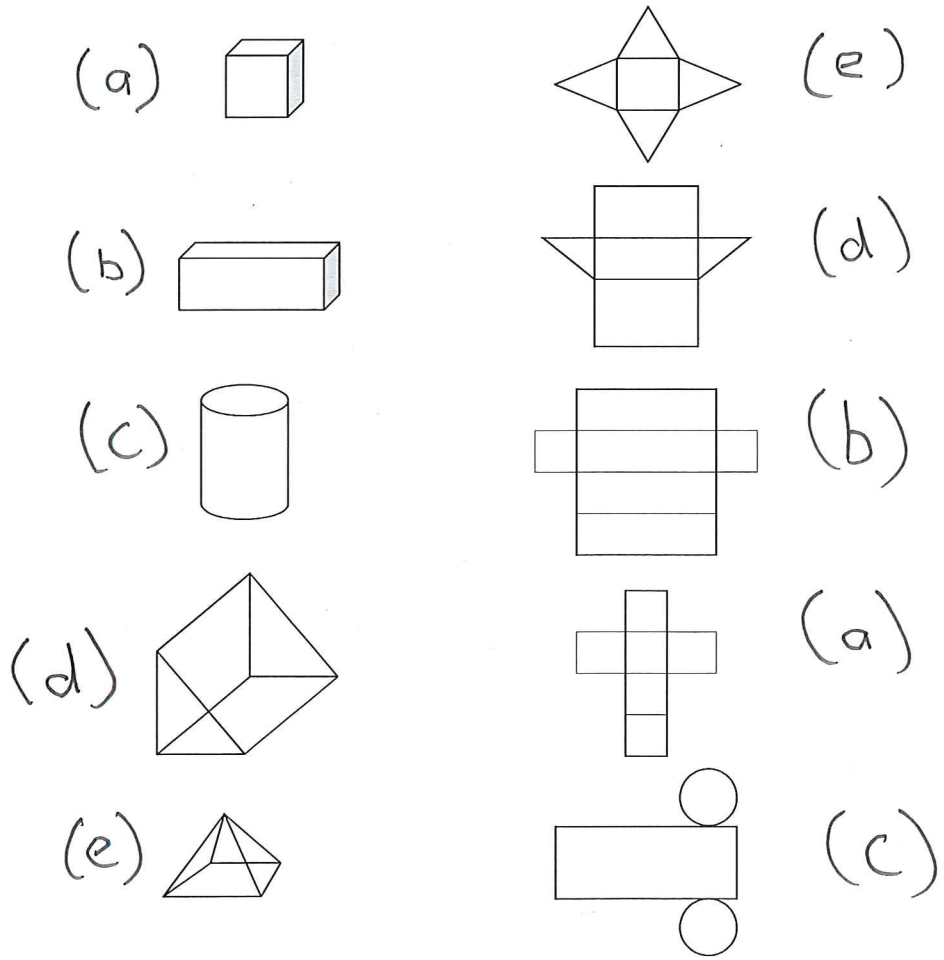
a) The three sides of a right-angled triangle measure 40 m, 41 m and 9 m. The length of the hypotenuse is:

(i) 9 m **(ii)** 40 m **(ii)** 41 m **(iv)** none of these

b) A map has a scale of 1 : 5000. 5cm on the map is equal to how far in real life?

(i) 5000 cm **(ii)** 2500 cm **(iii)** 25 m **(iv)** 250 m

Question 2 (3 marks)
Match each shape to it's net



½ mark each

bonus ½ mark for all correct.

✓✓✓ all correct

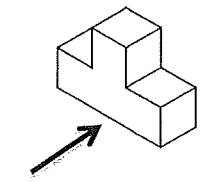
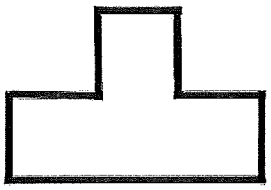
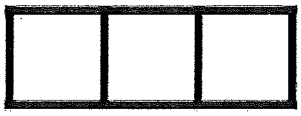
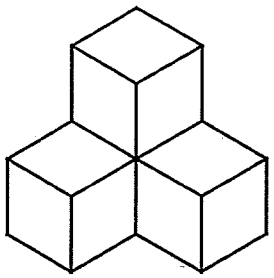
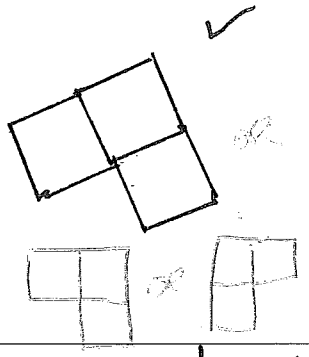
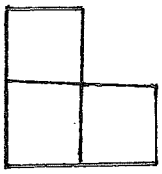
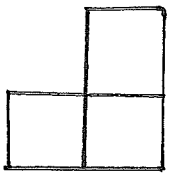
✓✓ 3 correct

✓ 2 correct

Question 3 (4 marks)

1 mark all 3 correct

Complete the following table

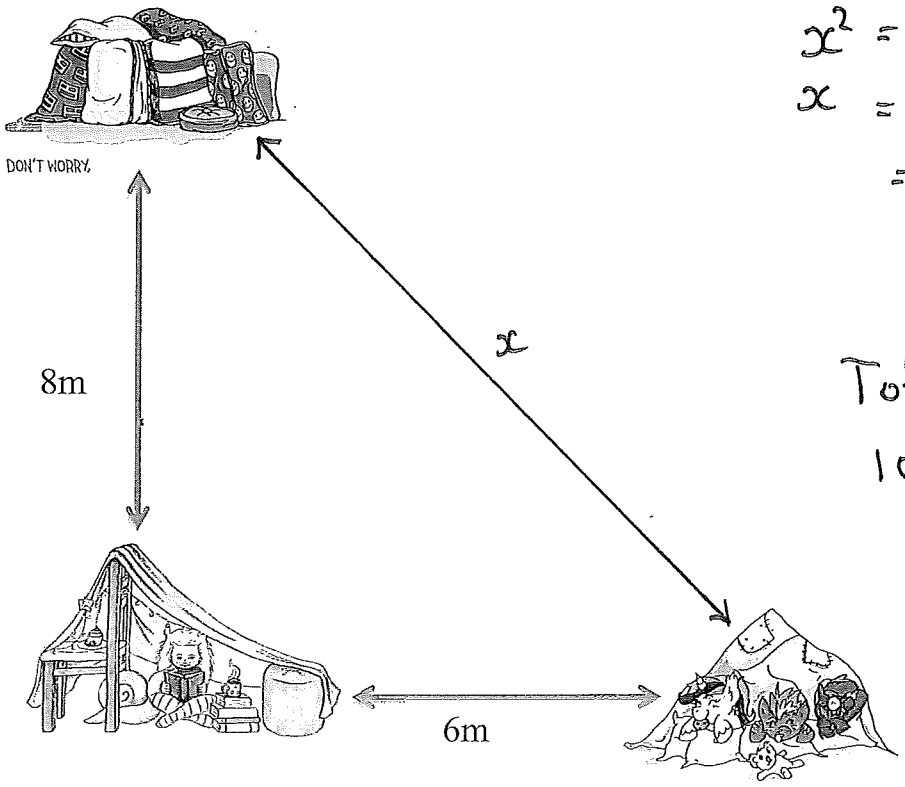
 Front	Front Elevation 	Plan 	Side Elevation 
	Plan 	Front Elevation 	Side Elevation 

1 mark each.

Question 4 (3 marks)

Miss Jones, Mr Elliot and Mr Cook have all constructed pillow forts as seen in the diagram below. They wish to run cable to all 3 forts so that they can connect their laptops.

How much total cable will be needed?



$x^2 = 8^2 + 6^2$ ✓

$x = \sqrt{8^2 + 6^2}$

$= \sqrt{100}$

$= 10$ ✓

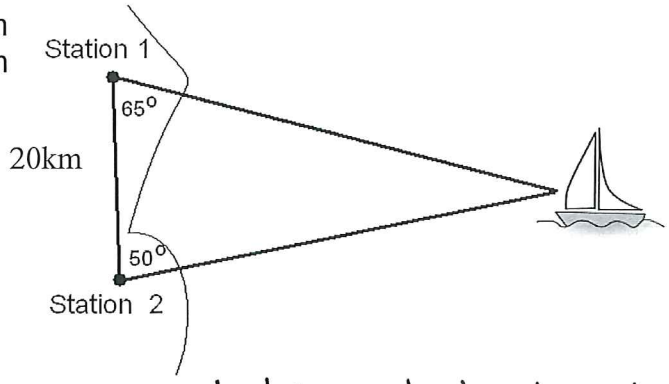
Total Cable

$10 + 8 + 6 = 24\text{m}$ ✓

Question 5 (6 marks)

Create an accurate scale drawing of the diagram on the right to determine how far the boat is from each station.

Use scale 1cm = 2km



-1 Lines don't intersect

-1 Don't label stations on drawing

S1

8.4cm

65° ±2° ✓

✓ 10cm ± 0.1cm

50° ±2° ✓

9.9cm

S2

-1 If don't indicate which station.

S1

$8.4 \times 2 = 16.8$km ✓ ✓

S2

$9.9 \times 2 = 19.8$km ✓

FoT

-1 Missing / Incorrect Units
-1 Incorrect Rounding

Student Name Solutions

Eastern Goldfields College
Mathematics Essential Unit 3 2017

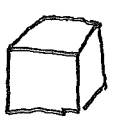
Test 3

Working Time: 35 minutes **Marks: 28 marks**

Calculator Assumed **(Formulae sheet and one A4 page of notes)**

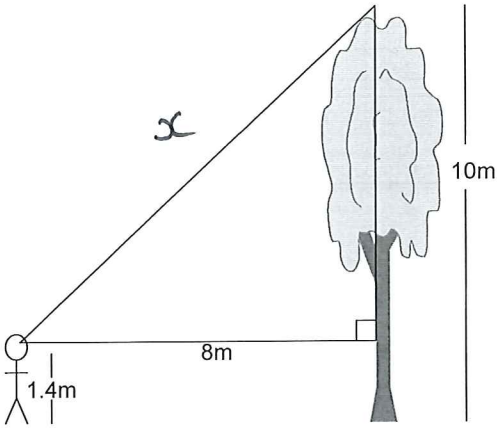
Question 6 (6 marks: 2, 2, 2)

Draw and name the following shapes, according to the descriptions given below:

	Description	Name	Drawing
(a)	A 3D shape with 6 faces, all of which are the same size and shape.	Cube ✓	 ✓
(b)	A 3D shape that is made up of 5 faces – 2 triangles and 3 rectangles.	Triangular Prism ✓	 ✓
(c)	A 3D shape which has a single curved edge, a vertex and a circle base.	Cone ✓	 ✓

Question 7 (3 marks)

A boy notices a bird sitting at the very top of a 10m tall tree. If he is standing 8m from the base of the tree, what is the distance between his eye and the top of the tree?



$10 - 1.4 = 8.6$ ✓

$x = \sqrt{8^2 + 8.6^2}$ ✓

$= 11.7\text{m}$ ✓

2 total if they use 10m

Question 8 (3 marks)

The school council needs to have a ramp build over the steps of each of the building exits, to accommodate a student in a wheelchair. If the school building is 35cm off the ground and has steps that reach out 50cm, calculate the length of the ramp

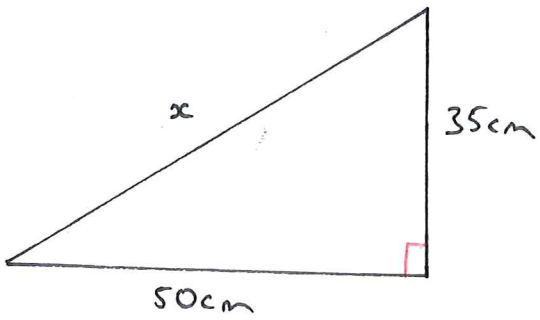
$x = \sqrt{50^2 + 35^2}$ ✓

$= \sqrt{3725}$

$= 61.03$

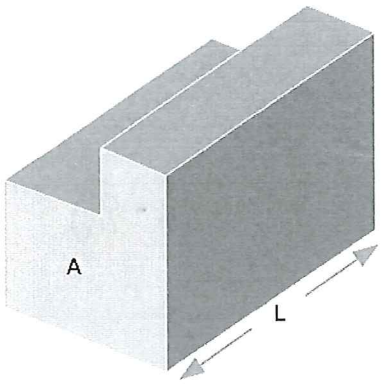
$\therefore 61\text{cm}$ ✓

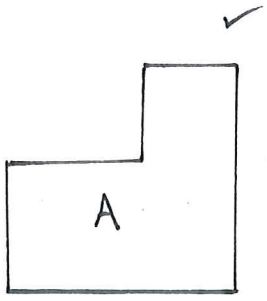
Must give the length of the ramp



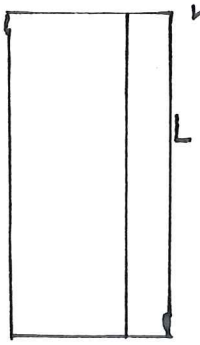
Question 9 (3 marks)

Choose an appropriate method to display the characteristics of the following shape

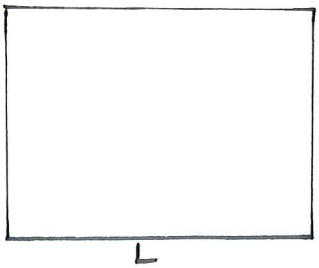




Front Elevation ✓



Plan ✓

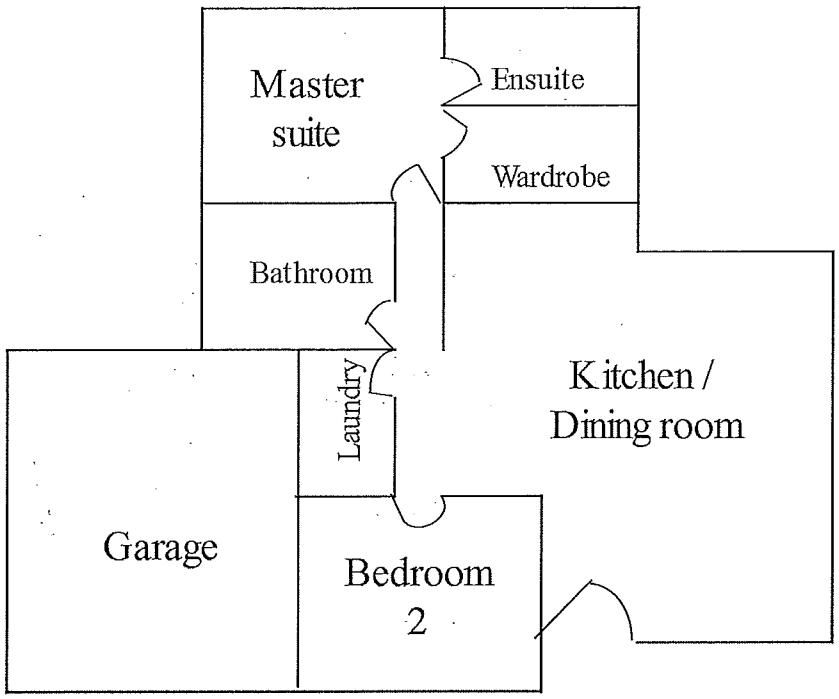


Side Elevation ✓

Accept an accurate Net

Question 10 (6 marks: 2, 2, 2)

Below is the floor plan for Mrs Wood's new holiday house.



Scale 1: 200

a) Using the scale given, find the area of the garage

4.5 × 200 = 900

3.9 × 200 = 780

900 × 780 = 702000 cm² ✓ ✓

Accept 70.2 m²

b) Mrs Wood decides that she wants to concrete the floor of the garage. If concrete costs $21.20 per square metre, how much will it cost to complete?

70.2 × 21.2 = $1488.24 ✓ ✓

↑ FT from part a)

c) The bathroom, laundry and ensuite are to be tiled, with tiles costing $41.40/m². How much will it cost to buy tiles?

13.52 + 14.76 + 9.88

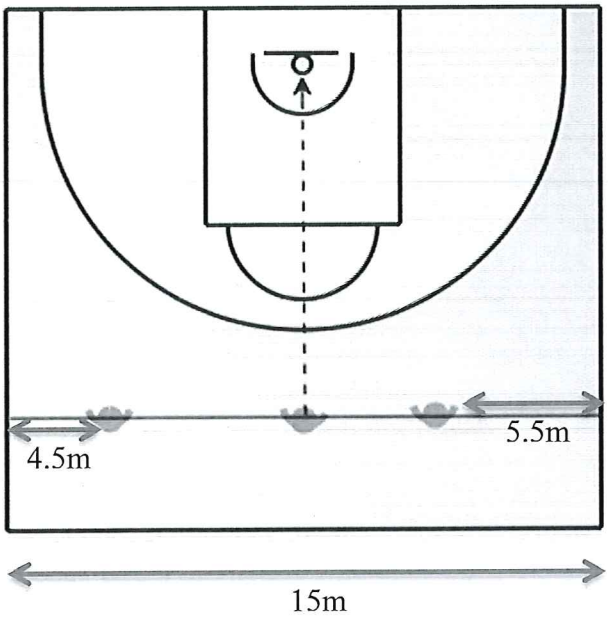
5.2 × 2.6 + 5.2 × 3.8 + 2.6 × 3.8

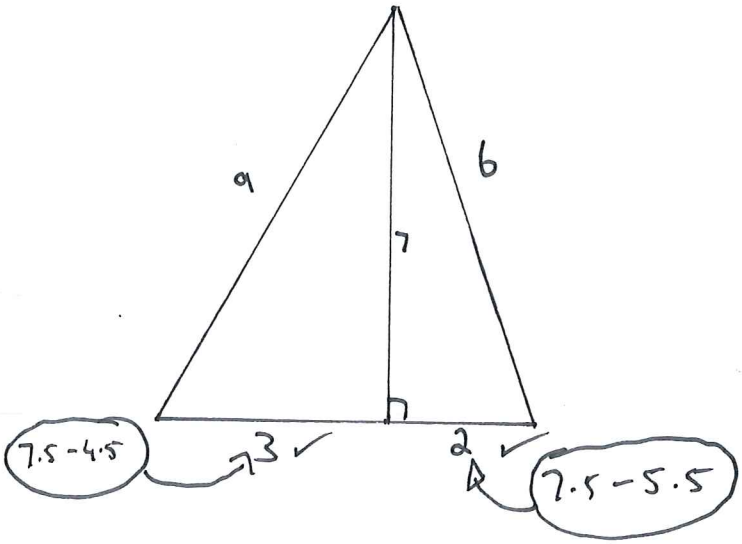
= 43.16 ✓

43.16 × 41.40 = $1786.82 ✓

Question 11 (7 marks)

A basketball coach draws a line across the court that is exactly 7m away from the hoop (as seen in the diagram below). He gets 3 players to stand on the line for a shooting drill; one is directly in front of the hoop with the other 2 players set up either side. One of the players protests and says that this setup is not fair. Is the player correct? Justify with calculations





$a^2 = 3^2 + 7^2$ ✓

$a = \sqrt{3^2 + 7^2}$

$= 7.6\text{m}$ ✓ 7.6157

$6^2 = 7^2 + 2^2$

$6 = \sqrt{7^2 + 2^2}$

$= 7.3\text{m}$ ✓ 7.2501

Player is correct. ✓

Each player must ✓ A is closest

Shoot from a different distance. or shooting from further out is not fair.

END OF TEST