



Student Name Answers.

## Eastern Goldfields College Mathematics Essential Unit 3 2018

### Test 3

**Working Time: 20 minutes**

**Marks: 19 marks**

**Calculator Free (No notes or calculator allowed)**

#### Question 1 (4 marks – 1,1,1,1)

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:

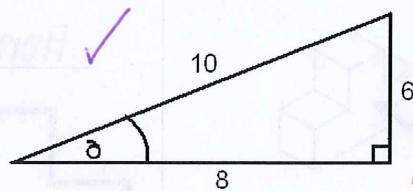
- (i) 9 m      (ii) 40 m      (iii) 41 m      (iv) none of these

- 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

- c) In relation to the angle, which is the opposite side?

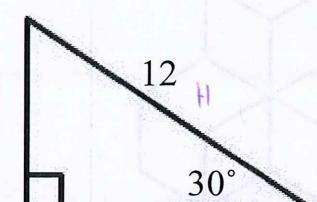
- (i) 10      (ii) 8      (iii) 6      (iv) none of these



- d) The value for x in the diagram is given by:

(i)  $12 \times \sin 30^\circ$     (ii)  $12 \times \cos 30^\circ$     (iii)  $\frac{12}{\tan 30^\circ}$

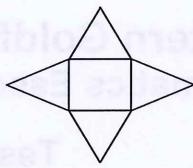
(iv)  $\frac{12}{\sin 30^\circ}$



### Question 2 (2 marks)

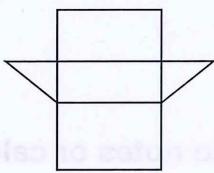
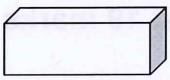
Match each shape to its net

①



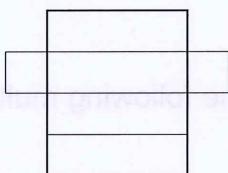
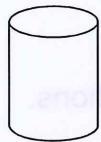
⑤

②



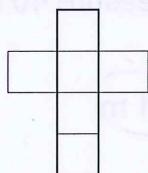
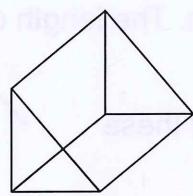
④

③



②

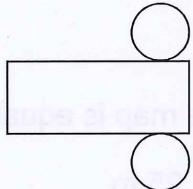
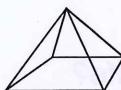
④



①

// All correct

⑤



③

✓ ~2 wrong.

### Question 3 (4 marks – 1,3)

- a) Label the different views for the following 3D shape.

 Front	<u>Front</u> 	<u>Plan</u> 	<u>Side</u> 
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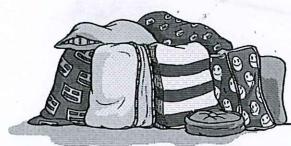
- b) Draw the shape in its different views.

 Front	<u>Plan</u> 	<u>Front Elevation</u> 	<u>Side Elevation</u> 
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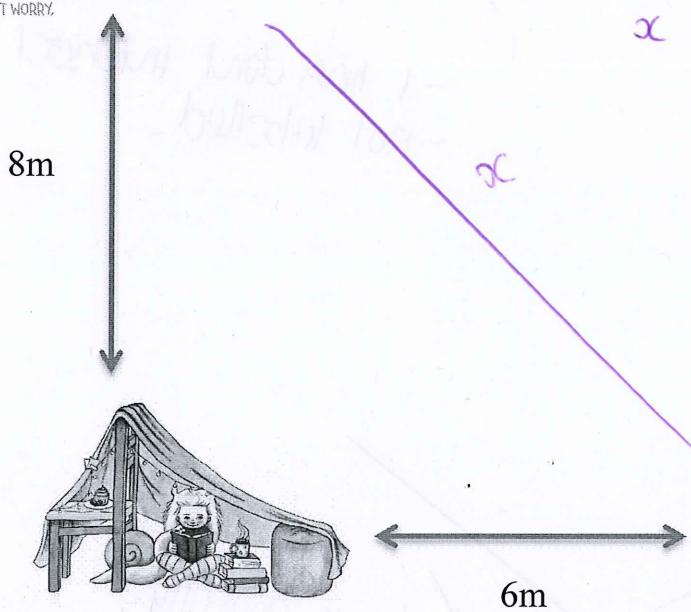
6

#### 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?



DON'T WORRY,



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

$$x = 10$$

$$10 + 8 + 6 \quad \checkmark$$

$$= 24m \quad \checkmark$$

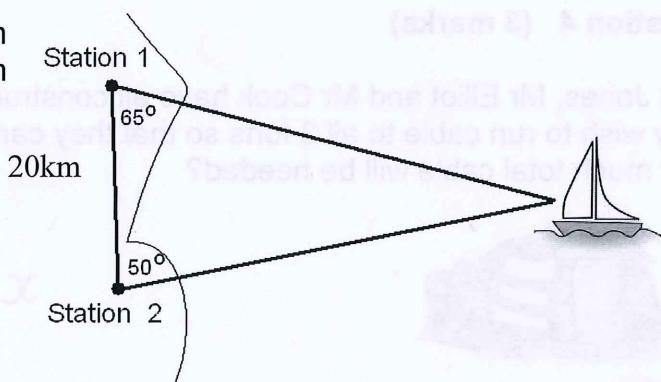


13

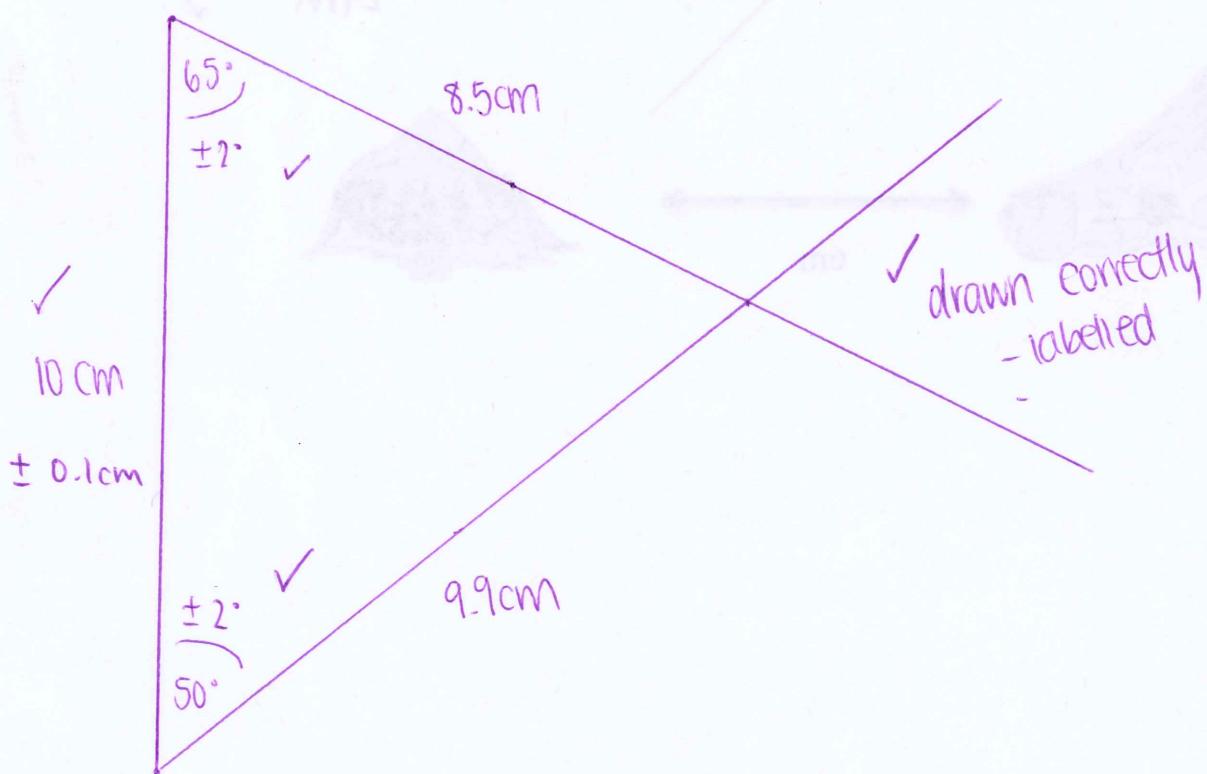
### Question 5 (6 marks)

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

Use scale 1 = 200000



- 1 lines don't intersect
- not labelled -



$$8.5 \times 2 = 17 \text{ km}$$

✓

$$9.9 \times 2 = 19.8 \text{ km}$$

✓

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Student Name \_\_\_\_\_

## Eastern Goldfields College Mathematics Essential Unit 3 2018

### Test 3

**Working Time: 35 minutes**

**Marks: 29 marks**

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

#### **Question 6 (2 marks)**

Draw and name the following shape, according to the description given below:

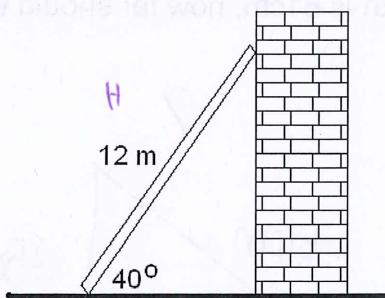
Description	Name	Drawing
A 3D shape that is made up of 5 faces – 2 triangles and 3 rectangles.	triangular prism	

#### **Question 7 (3 marks)**

A ladder 12 m long leans against a wall. If it forms an angle of  $40^\circ$  with the ground, how far is the bottom of the ladder away from the wall?



$$\cos 40^\circ = \frac{x}{12}$$

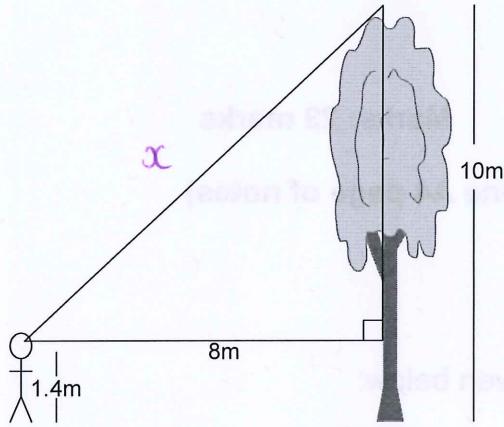


$$\cos 40^\circ \times 12 = x \quad \checkmark$$

$$9.2 \text{ m} = x \quad \checkmark$$

**Question 8 (5 marks – 3,2)**

- a) 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?



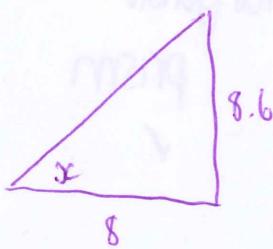
$$x = \sqrt{(8^2 + 8.6^2)} \quad \checkmark$$

$$x = 11.75 \text{ m} \quad \checkmark$$

OR

$$\sqrt{(8^2 + 10^2)} \quad \checkmark \\ = 12.8$$

- b) What is the angle of elevation from the boy's eye to the top of the tree?

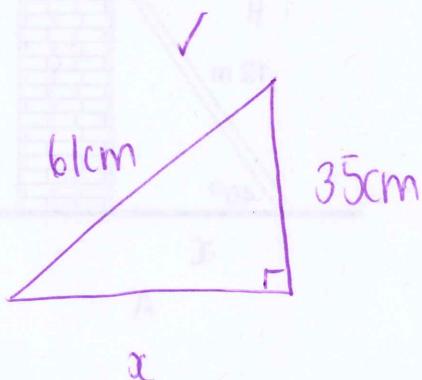


$$\tan \theta = \frac{8.6}{8} \quad \checkmark$$

$$\theta = 47^\circ \quad \checkmark$$

**Question 9 (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 the ramp length is 61cm, how far should the steps reach out to accommodate the ramp?

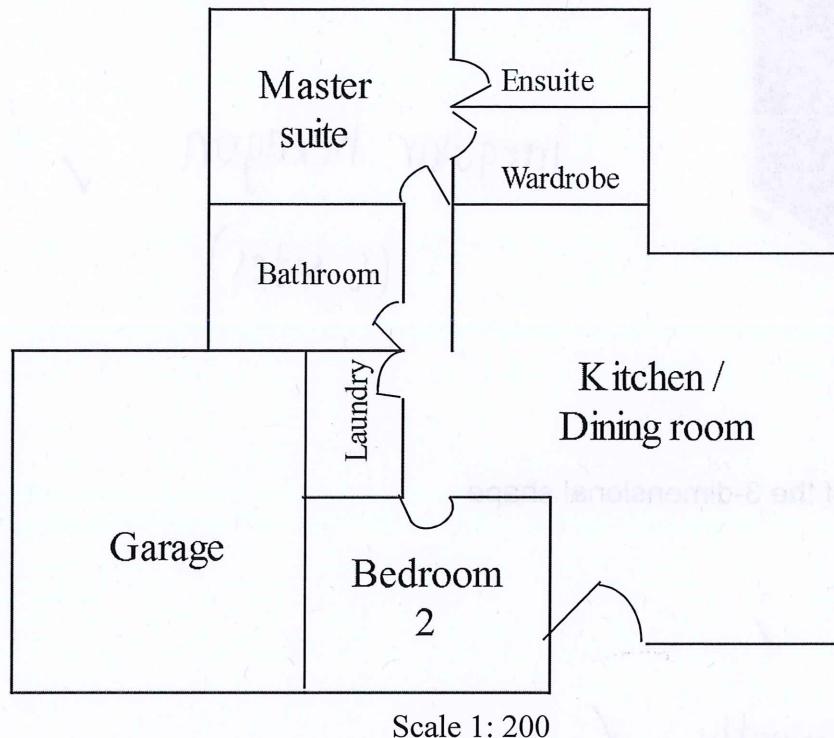


$$\sqrt{(61^2 - 35^2)} \quad \checkmark$$

$$x = 50 \text{ cm} \quad \checkmark$$

**Question 10 (7 marks: 2, 2, 3)**

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



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

$$4.5 \times 3.9$$

$$900 \text{ cm} \times 780 \text{ cm} = 702000 \text{ cm}^2 \quad \text{or} \quad 70.2 \text{ m}^2$$

✓

- 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?

$$70.2 \times \$21.20 = \$1488.24$$

✓

↑  
FT

- c) The bathroom, laundry and ensuite are to be tiled, with tiles costing \$41.40/m<sup>2</sup>. How much will it cost to buy tiles?

$$\text{laundry : } 2 \times 1.3 \quad 400 \times 260 \quad = \quad 447200 \text{ cm}^2 \quad \checkmark$$

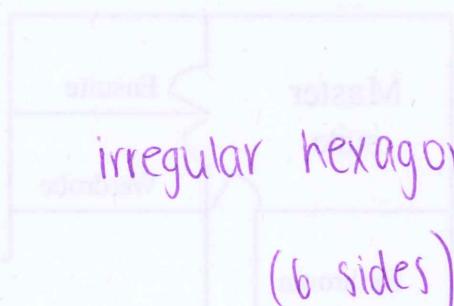
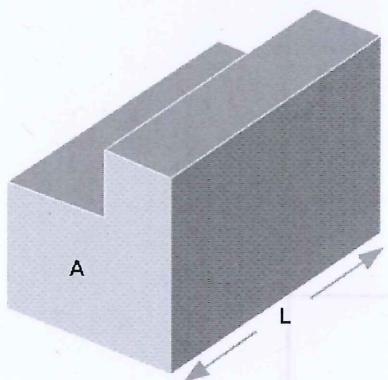
$$\text{bathroom : } 2 \times 2.6 \quad 400 \times 520 \quad = \quad 44.72 \text{ m}^2 \times 41.40$$

$$\text{Ensuite : } 2.6 \times 1.3 \quad 520 \times 260 \quad = \quad \$1851.42 \quad \checkmark$$

\* accept 40-45m<sup>2</sup> = \$1656 → \$1863

**Question 11 (4 marks – 1, 3)**

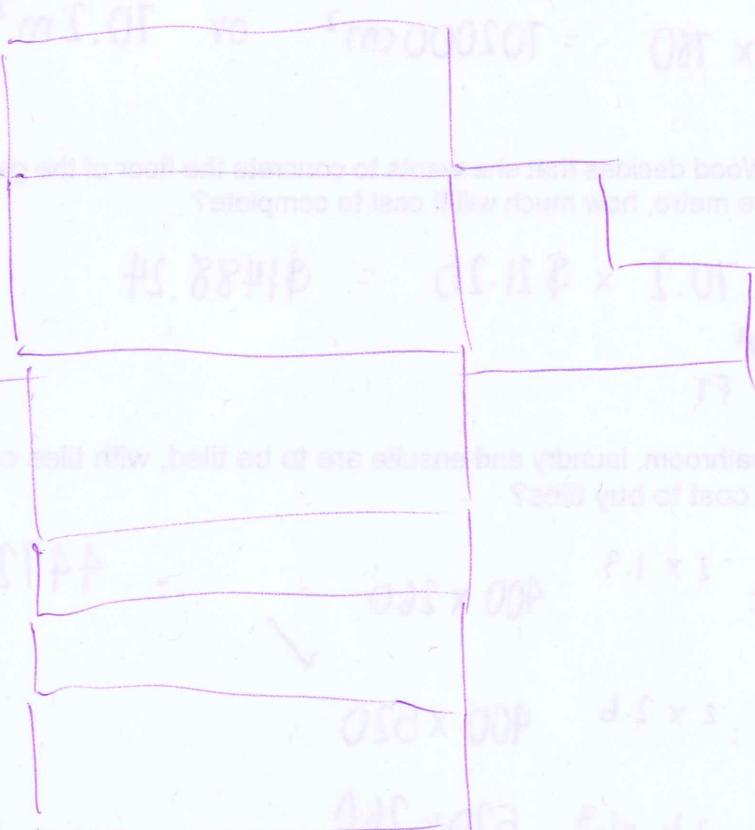
- a) What is the name of the front elevation (face A)



- b) Draw the net of the 3-dimensional shape

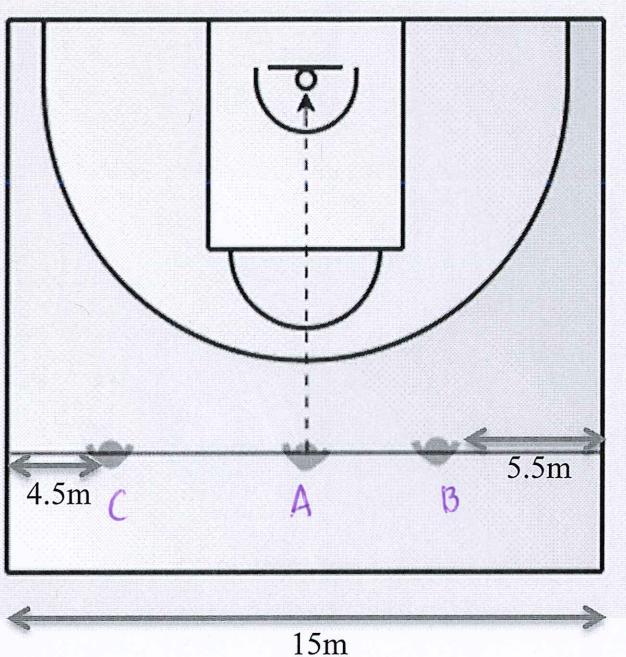
8 faces ✓

drawn correctly ✓



**Question 12 (5 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 : 7m away ✓

$$B : \sqrt{7^2 + 2^2} = 7.3\text{m}$$

$$C : \sqrt{7^2 + 3^2} = 7.6\text{m}$$

✓  
yes, players are different  
distances from goal ✓

END OF TEST

