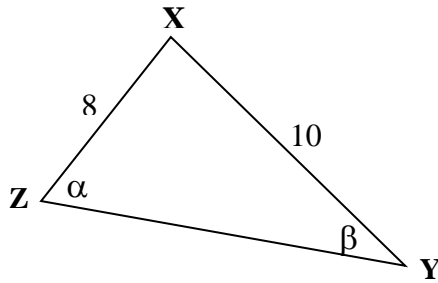



**SEND: Work for Submission for Week 3**

Show the essential working in the spaces provided.

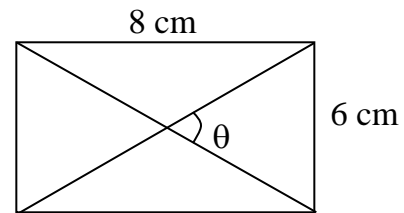
Show the relevant working even for the multiple-choice questions.

1. Given  $XZ = 8$ ,  $XY = 10$ ,  $\sin \alpha = \frac{2}{3}$ , then  $\sin \beta$  equals



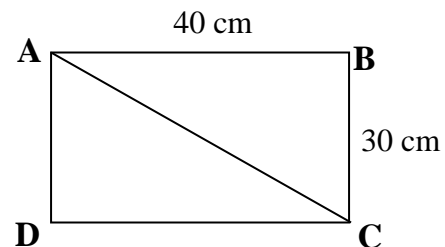
- A.  $\frac{4}{15}$       B.  $\frac{8}{15}$       C.  $\frac{5}{12}$       D.  $\frac{4}{5}$       E.  $\frac{5}{6}$
2. A rectangle is 8 cm long and 6 cm wide. The acute angle  $\theta$ , correct to the nearest degree is

- A.  $37^\circ$   
 B.  $41^\circ$   
 C.  $49^\circ$   
 D.  $74^\circ$   
 E.  $83^\circ$



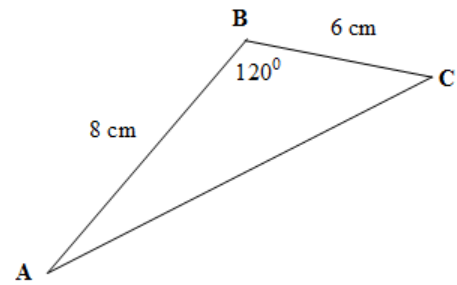
3. In the figure shown (not drawn to scale), ABCD is a rectangle. The angle ACD is equal to

- A.  $\tan^{-1} 0.1$   
 B.  $\tan^{-1} 0.25$   
 C.  $\tan^{-1} 0.5$   
 D.  $\tan^{-1} 0.75$   
 E.  $\tan^{-1} \frac{4}{3}$



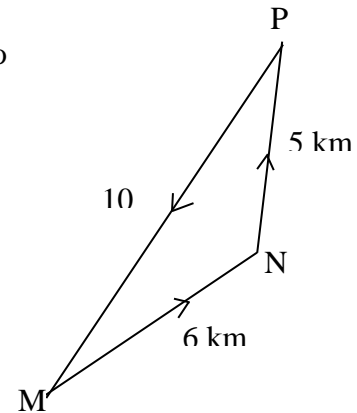
4. In  $\triangle ABC$ , the length  $AC$  in centimetres is determined by evaluating

- A.  $\sqrt{100 + 96 \cos 120^\circ}$   
 B.  $\sqrt{100 - 96 \cos 120^\circ}$   
 C.  $\sqrt{100 - 96 \cos 60^\circ}$   
 D.  $\sqrt{64 + 36 - 96}$   
 E.  $\sqrt{100 (1 + 2 \cos 120^\circ)}$



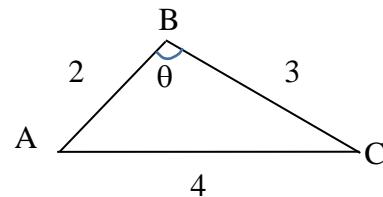
5. A yacht follows a triangle course  $MNP$  as shown.  
 The largest angle between any two legs of the course is closest to

- A.  $50^\circ$   
 B.  $70^\circ$   
 C.  $120^\circ$   
 D.  $130^\circ$   
 E.  $140^\circ$



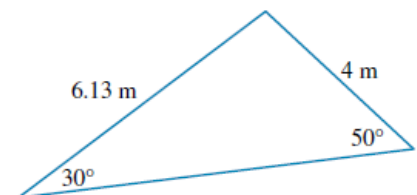
6. For the triangle  $ABC$ ,  $\angle ABC = \theta$ ,  $\cos \theta$  equals

- A.  $-\frac{1}{4}$   
 B.  $-\frac{1}{2}$   
 C.  $\frac{1}{4}$   
 D.  $\frac{1}{2}$   
 E.  $\frac{3}{4}$



7. The correct expression for the area of the shape shown is:

- A.  $\frac{1}{2} \times 6.13 \times 4 \times \sin(80^\circ)$   
 B.  $\frac{1}{2} \times 6.13 \times 4 \times \cos(100^\circ)$   
 C.  $\frac{1}{2} \times 6.13 \times 4 \times \sin(100^\circ)$   
 D.  $\frac{1}{2} \times 6.13 \times 4$   
 E. None of the above

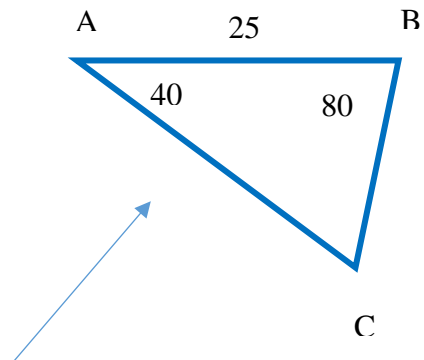


**Problem Solving Questions 8 to 11 (Copy out the diagram)**

8. The following image shows three kite surfers A, B and C.

A and B are 25 m apart.

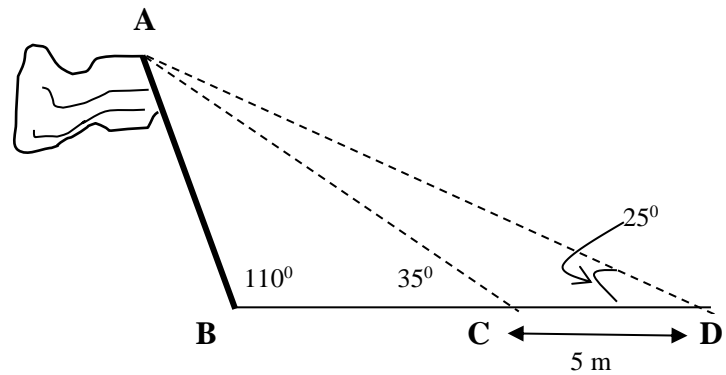
$\angle BAC = 40^\circ$  and  $\angle ABC = 80^\circ$



(a) How far is C from A?

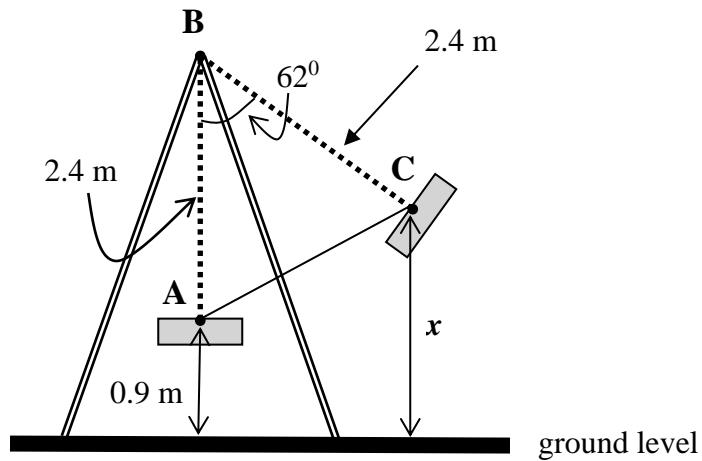
(b) Calculate the area of the region enclosed by  $\triangle ABC$

9. A flagpole **AB** is secured by guy wires **AC** and **AD**. The wires are secured 5m apart at points **C** and **D**. Work out the length of the flagpole to one decimal place.



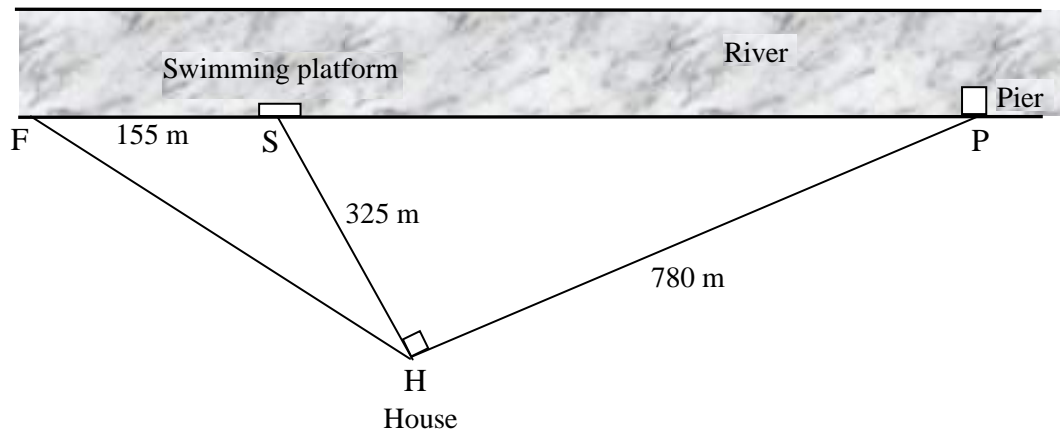
Copy the diagram and show detailed workings in your response.

10. Children using the swing, shown below find that if they swing high enough, they will see over the fence. The swing is 0.9 metres above the ground originally. The swing makes an angle of  $62^\circ$  when it moves from position A to position C.



Find the **vertical distance  $x$**  above the ground after the swing moves through  $62^\circ$ ?

11. A farmer has his house built near a river. The house, H, is 780 metres from the pier, P, and 325 metres from the swimming platform, S, shown in the diagram below. Beside the river are two paddocks, PHS and FHS as shown.



- (a) Find the area of each paddock.
- (b) Find the length, FH, in metres, correct to one decimal place.

**SEND: Work for Submission – Week 3 Online Quiz**

Every week there are five multiple-choice questions to attempt online as part of the work submission. Log in to VSV online, select Further Maths and click the link for **Week 3 Quiz**.



**Restrict your time to 10 minutes only.**

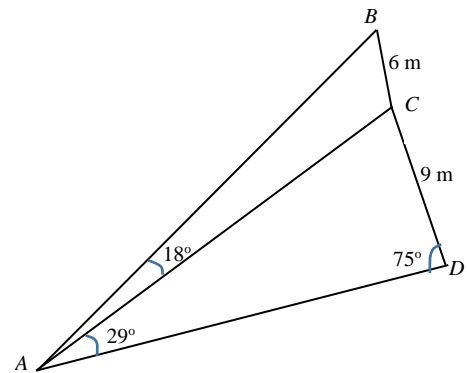
Below are the quiz questions. You can do them first and then go online to enter your responses and get immediate response. If you get **less than 4/5**, this indicates that you need to spend more time reviewing the work for the week.

Please submit this section together with the other questions in the main section.

**Circle the letter beside the correct answer.**

1. The acute angle  $\angle ABC$ , to the nearest degree, is:

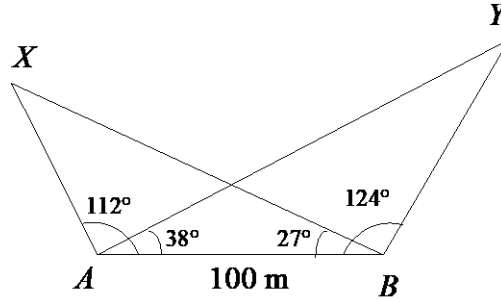
- A.  $27^\circ$
- B.  $58^\circ$
- C.  $67^\circ$
- D.  $76^\circ$
- E.  $86^\circ$



2. In a triangle  $ABC$ ,  $BC = 6.2$  cm,  $AC = 7.8$  cm and  $AB = 8.3$  cm. The magnitude of  $\angle ABC$ , correct to the nearest degree, is:

- A.  $45^\circ$
- B.  $63^\circ$
- C.  $72^\circ$
- D.  $82^\circ$
- E.  $98^\circ$

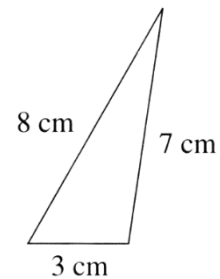
3. A surveyor has measured the angles to two distant points  $X$  and  $Y$  from the survey points  $A$  and  $B$ , which are 100 m apart.



The distance from  $A$  to  $Y$ , to the nearest metre is:

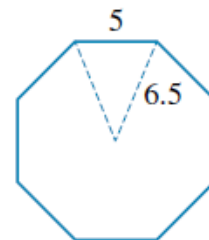
- A. 536 m
  - B. 268 m
  - C. 127 m
  - D. 83 m
  - E. 37 m
4. The area of the triangle shown is closest to:

- A.  $9.0 \text{ cm}^2$
- B.  $10.4 \text{ cm}^2$
- C.  $10.5 \text{ cm}^2$
- D.  $12.0 \text{ cm}^2$
- E.  $172.3 \text{ cm}^2$



5. The correct expression for the area of the octagon below is:

- A.  $195 \times \sin(45^\circ)$
- B.  $169 \times \sin(45^\circ)$
- C.  $195 \times \sin(60^\circ)$
- D.  $338 \times \sin(60^\circ)$
- E.  $5 \times 6.5 \times \sin(67.5^\circ)$







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84103

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SUBJECT            VCE Further Mathematics Unit 4

YEAR/LEVEL        12                WEEK            3

TEACHER            \_\_\_\_\_

[ZX]

**PLEASE ATTACH WORK TO BE SENT.**

NOTE: Please write your number on each page of your work, which is attached to this page.

**SEND**

Please check that you have attached:

- Work for Submission: Multiple choice questions and Problem Solving questions 1 to 11.
- Work for Submission: Online quiz questions 1 to 5

Have you left out any of the above items? Please let us know the reason for this so we can help you.

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**Use the space on the back of this sheet if you have any questions you would like to ask, or problems with your work that you would like to share with your teacher.**

**REVIEW, REFLECT AND ASK**

<b>I found this week's course work:</b>  <input type="checkbox"/> Very interesting <input type="checkbox"/> Interesting <input type="checkbox"/> Sort of interesting <input type="checkbox"/> Unsure  <b>Comments:</b>	<b>I think the work was:</b>  <input type="checkbox"/> Too easy <input type="checkbox"/> Easy <input type="checkbox"/> OK <input type="checkbox"/> Challenging (it got me thinking) <input type="checkbox"/> Hard <input type="checkbox"/> Too hard  <b>Comments:</b>
<b>Questions I have about this week's work:</b> ( <i>Why? What? When? Who? How?</i> )  ➤ <b>Why...</b>  ➤ <b>When...</b>  ➤ <b>How....</b>  <i>I would like further explanation on:</i>  <b>Other comments:</b>	
<b>TEACHER'S FEEDBACK</b>	
<b>DISTANCE EDUCATION CENTRE TEACHER</b>	