

Content	Comm.	Final
/37	/3	/40

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

$$a^2 + b^2 = c^2$$

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$A = \cos^{-1} \left(\frac{b^2 + c^2 - a^2}{2bc} \right)$$

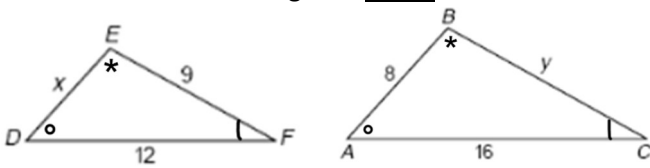
* Round all side lengths to one decimal place and all angles to the nearest degree *

* Do not round until the final line of each equation *

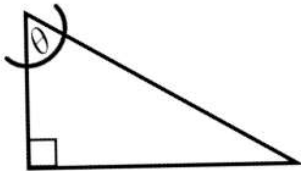
* Choose the most efficient method for each question when solving *

Part A (23 marks) – Attempt all questions in Part A before moving on to Part B

1. Triangle DEF is **similar** to triangle ABC. [2]
Calculate the length of **side x**.

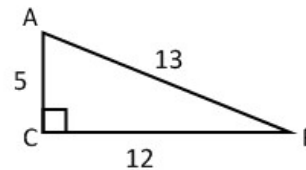


2. a) For the marked angle θ , label the sides as hypotenuse, opposite and adjacent. [1]



3. State the following trig ratios for triangle ABC. [2]
Express your answers as **fractions**.

- a) $\cos B =$ _____ b) $\tan A =$ _____



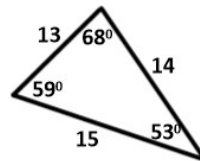
4. a) Evaluate to 4 decimal places. [1]

$$\cos 12^\circ =$$

- b) Determine the measure of angle A. [1]

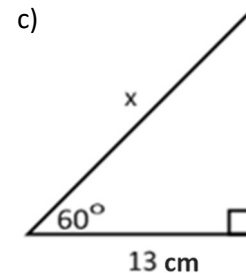
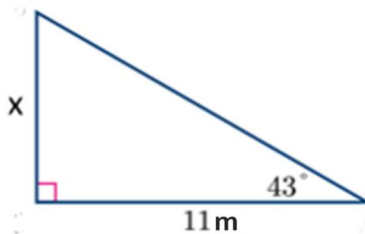
$$\sin A = 0.59 \quad \angle A =$$

5. Fill in the blanks to make the ratio correct. [1]



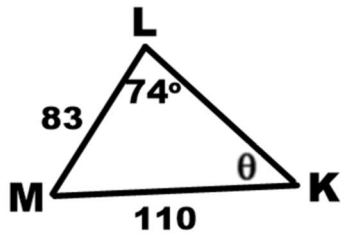
$$\frac{\sin 68^\circ}{\boxed{}} = \frac{\boxed{}}{14}$$

6. Use the **Primary Trig Ratios** to find the **unknown value** in each triangle shown below. Show all of your thinking. [6]

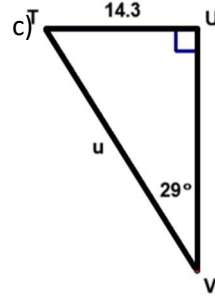
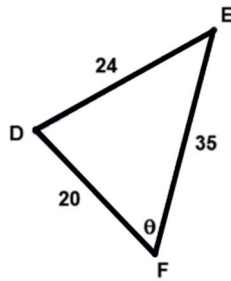


7. For each of the following, state which trigonometric tool you would use to solve for the unknown. [3]

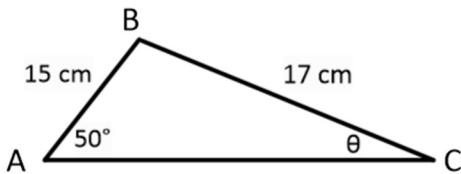
a)



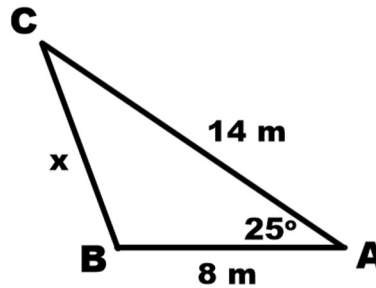
b)



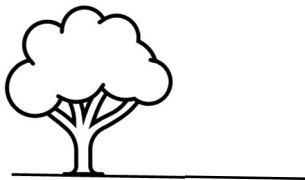
8. Use the **Sine Law** to find the unknown angle θ . [2]



9. Use the **Cosine Law** to find the unknown side. [2]



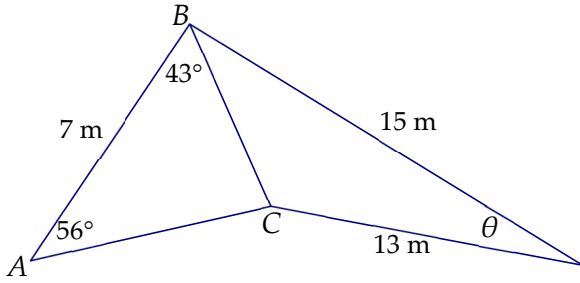
10. From a point 8.5 m from the base of a tree, the angle of elevation to the top of the tree is 37° . Determine the **height** of the tree to the nearest metre. **Include a labelled sketch in your solution.** [2]



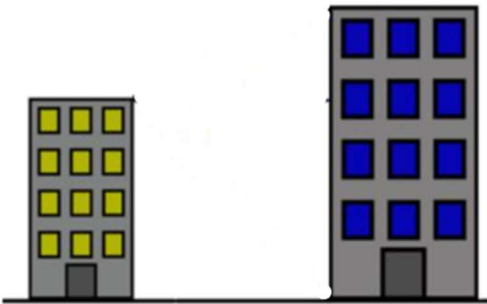
Part B (11 marks) Attempt all question in Part A before trying Part B. Show your work for full marks.

11. Given $\triangle ABC$, where $\angle B = 90^\circ$, $a = 10\text{cm}$ and $b = 17\text{cm}$. Solve triangle ABC . [3]

12. Given the diagram below, find the measure of angle θ , to the nearest degree. [4]



13. Laney is standing on the top of a building, looking at the taller neighbouring building. When she looks up at an angle of elevation of 36° , she sees the top of the building and when she looks down at an angle of depression of 41° , she sees the bottom of the building. If the two buildings are 20.0 m apart, what is the height of the taller building? [4]



Part C (3 marks) Attempt all question in Part B before trying Part C. Show your work for full marks.

14. Andy and Bob are standing 80.0 m apart, in line in front of a cliff. Andy looks up to the top of the cliff at an angle of elevation of 30° . Bob is standing closer to the cliff, and looks up to the top of the same cliff at an angle of elevation of 55° . Determine the height of the cliff. [3]