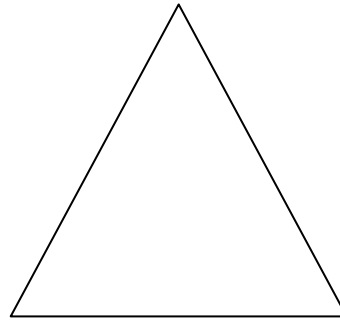
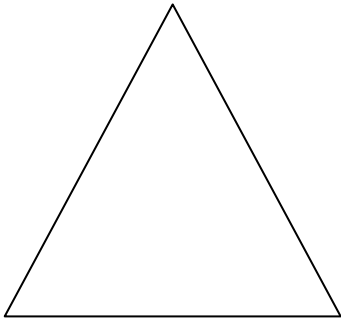


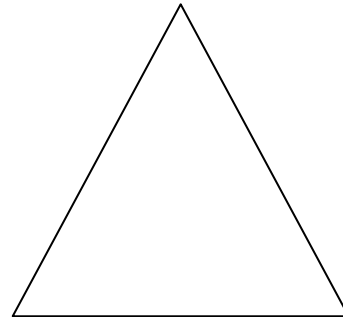
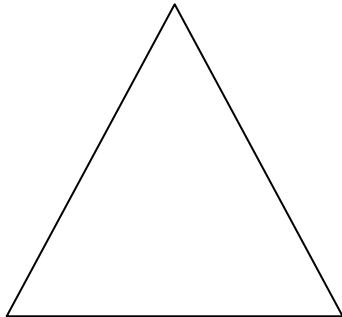
Solving Triangles

We have learned several strategies to solve for unknown sides and angles in triangles.

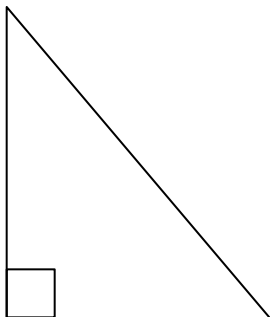
COSINE LAW



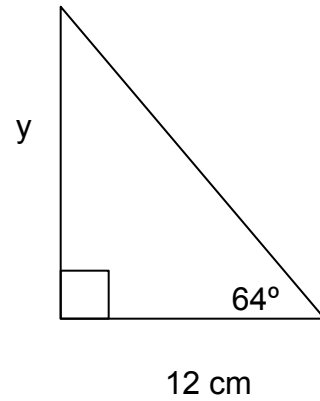
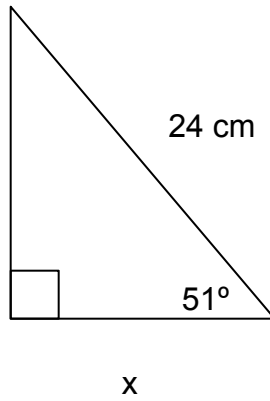
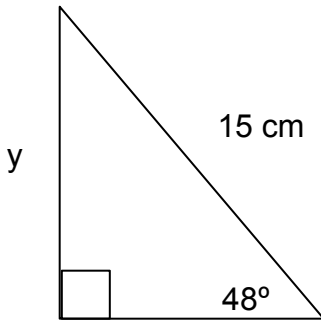
SINE LAW



SOH CAH TOA



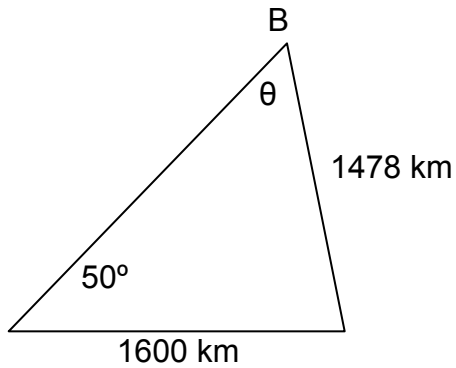
Example – Solve for the unknown side length or angle in each triangle below using sine law and then using the primary trigonometric ratios (SOH CAH TOA).



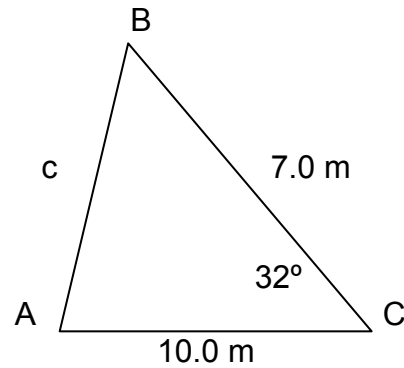
Section 1

For each triangle below, identify the appropriate method needed to solve for the unknown and then determine the value of the unknown angle or side.

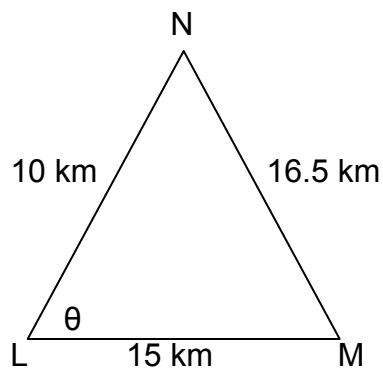
1.



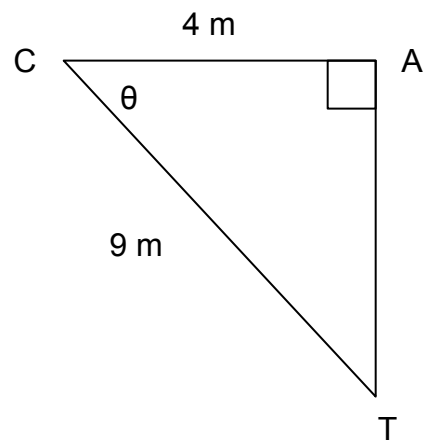
2.



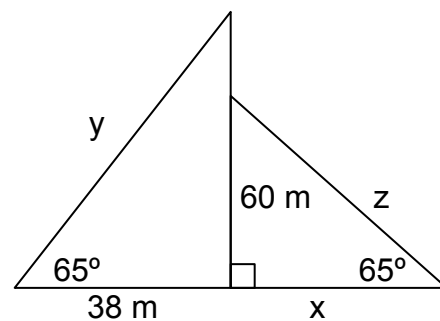
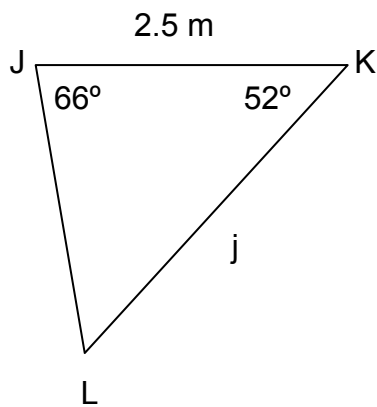
3.



4.



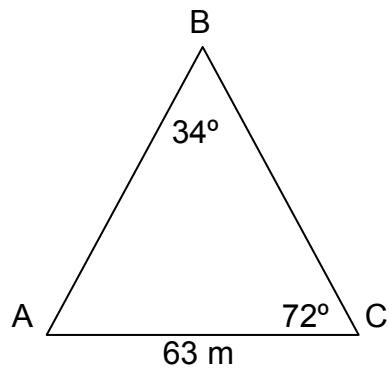
5.



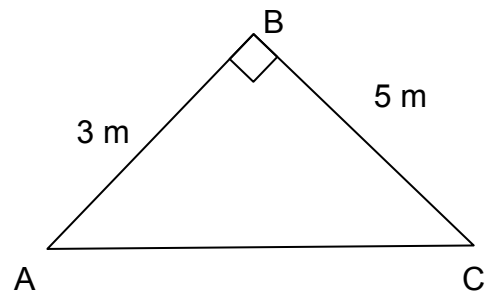
Section 2

Solve each triangle below.

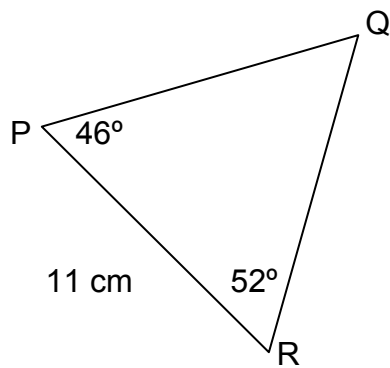
1.



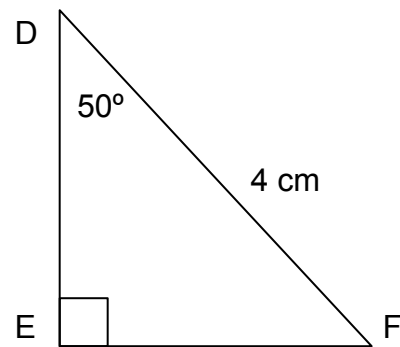
2.



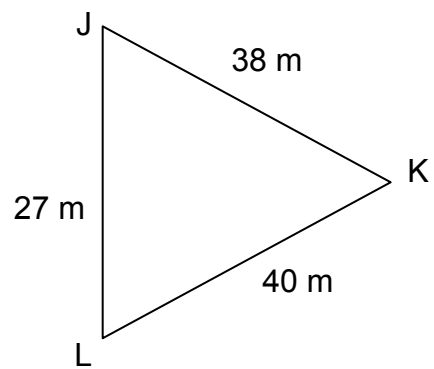
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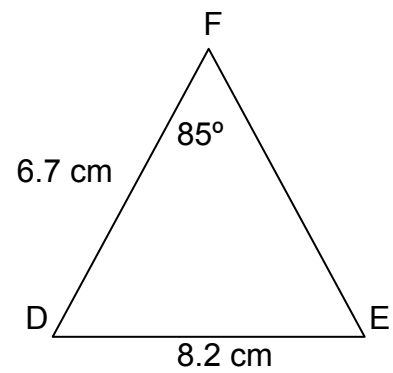
4.



5.



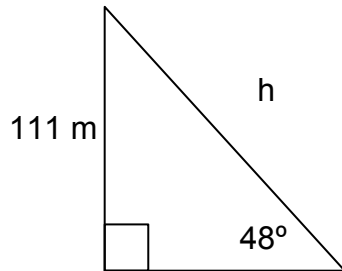
6.



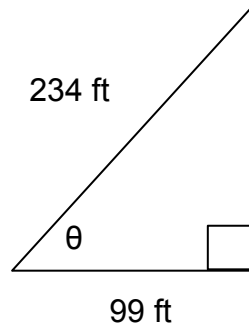
Section 3

1. Solve for the indicated side length or angle in each triangle below.

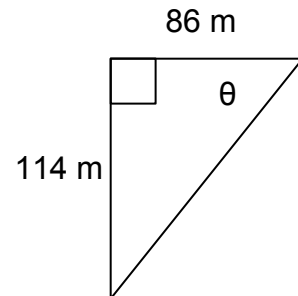
a.



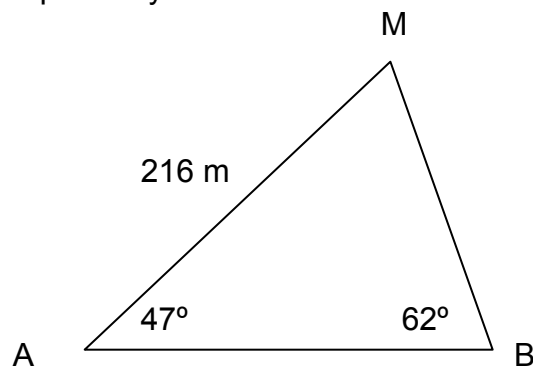
b.



c.



2. Angelica and Bobby are standing on opposite sides of a mountain and looking up at its peak. The angles of elevations from their positions are 47° and 62° respectively.



If Angelica is standing a distance of 216 m from the mountain peak:

- Determine the height of the mountain.
- Determine the distance between the mountain peak and Bobby.
- Determine the distance between Angelica and Bobby.

3. Complete question #5 on page 409.

Answer Key

Section 1

1. $B \approx 56^\circ$
2. $c \approx 5.50 \text{ m}$
3. $L \approx 80^\circ$
4. $\theta \approx 64^\circ$
5. $j \approx 2.59 \text{ m}$
6. $x \approx 27.98 \text{ m}$ $y \approx 89.92 \text{ m}$ $z \approx 66.20 \text{ m}$

Section 2

1. $A \approx 74^\circ$ $a \approx 108.30 \text{ m}$ $c \approx 107.15 \text{ m}$
2. $A \approx 59^\circ$ $C \approx 31^\circ$ $b \approx 5.83 \text{ m}$
3. $Q \approx 82^\circ$ $p \approx 7.99 \text{ cm}$ $r \approx 8.75 \text{ cm}$
4. $F \approx 40^\circ$ $d \approx 3.06 \text{ cm}$ $f \approx 2.57 \text{ cm}$
5. $J \approx 74^\circ$ $K \approx 40^\circ$ $L \approx 66^\circ$
6. $D \approx 41^\circ$ $E \approx 54^\circ$ $d \approx 5.40 \text{ cm}$

Section 3

1. $h \approx 149.37 \text{ m}$ b) $\theta \approx 65^\circ$ c) $\theta \approx 53^\circ$
2. 157.97 m b) 178.91 m c) 231.31 m
3. 5a) $F \approx 63^\circ$ $E \approx 54^\circ$ $g \approx 6 \text{ cm}$
5b) $x \approx 14 \text{ m}$ $Y \approx 51^\circ$ $W \approx 49^\circ$