

Competency Development Template (Topic Level)

Name of content Developer: _____

Content Developer ID: _____

Topic: _____

Date: _____

Underpinning knowledge (UK) needed to be able to solve the question on this topic:

The candidate should know that;

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

Performance criteria (PC) needed to be demonstrated in order to solve the question.

The candidate should be able to;

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

Prerequisite knowledge needed to interpret UK and PC:

1. _____

2. _____

Question to evaluate competency of topic:

A	
B	
C	
D	

Question to evaluate (UK# _____: _____)

A	
B	
C	
D	

Question to evaluate (UK# _____: _____)

A	
B	
C	
D	

Question to evaluate (PC# _____: _____)

A	
B	
C	
D	

Question to evaluate (PC# _____: _____)

A	
B	
C	
D	

Competency Development Template (Topic Level) - SAMPLE

Name of content Developer: Michelle Tan

Content Developer ID: 20200786

Topic: Pythagoras Theorem

Date: 3rd May 2020

Underpinning knowledge (UK) needed to be able to solve the question on this topic:

The candidate should know that;

3. Pythagoras Theorem applies to right angled triangles only.
4. At least lengths of any 2 sides of a triangle must be given in order to find the length of the 3rd side.
5. Pythagoras theorem $a^2 = b^2 + c^2$.

Performance criteria (PC) needed to be demonstrated in order to solve the question.

The candidate should be able to;

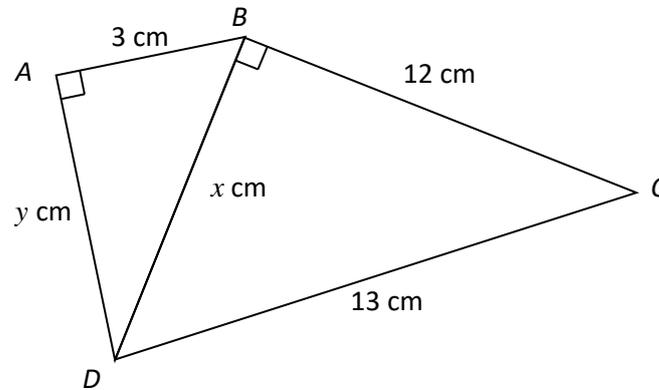
1. identify hypotenuse of a right angled triangle
2. identify right angle triangle
3. identify the suitable triangle to be used in a given complex shape
4. perform squaring operation
5. perform square rooting operation
6. solve algebraic equation involving squaring and square rooting operations.

Prerequisite knowledge needed to interpret UK and PC:

1. Right angle
2. Triangle
3. Squaring
4. Square rooting

Question to evaluate competency of topic:

Given that $\angle DAB = \angle DBC = 90^\circ$, $AB = 3$ cm, $BC = 12$ cm, $DC = 13$ cm, $BD = x$ cm and $AD = y$ cm. Which of the following options gives the correct values of x and of y in the following diagram?



	x	y
A	4	3
B	11	8
C	5	4
D	5	2

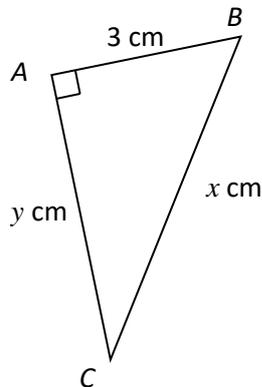
Question to evaluate (UK1: Pythagoras Theorem applies to right-angled triangles only)

In which type of triangles Pythagoras theorem can be used?

A	Equilateral triangles
B	Right angled triangles
C	Isosceles triangles
D	Any type of triangles

Question to evaluate (UK2: At least lengths of any 2 sides of a triangle must be given in order to find the length of the 3rd side.)

In the following triangle, the length of the side AC cannot be found because;



A	At least lengths of any 2 sides of a triangle must be given
B	Only the length of hypotenuse is given
C	The triangle will not obey Pythagoras theorem
D	The length of AB is 3 cm

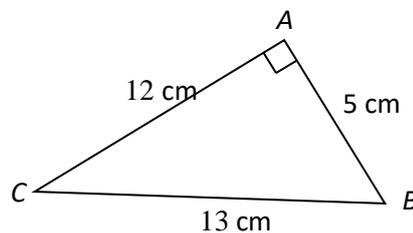
Question to evaluate (UK3: Pythagoras theorem $a^2 = b^2 + c^2$)

Which of the formula is used in Pythagoras theorem?

A	$a = b + c$	Where a is the length of the hypotenuse
B	$a^2 = b^2 - c^2$	Where c is the length of the hypotenuse
C	$a^2 = b^2 + c^2$	Where a is the length of the hypotenuse
D	$a^2 = b - c$	Where a is the length of the hypotenuse

Question to evaluate (PC1: Able to identify hypotenuse of a right angled triangle)

In the following triangle, what is the lengths is the hypotenuse?



A	12 cm
B	13 cm
C	5 cm
D	30 cm

Question to evaluate (PC2: Able to identify right angle triangle)

Which of the following figure shows a right angled triangle?

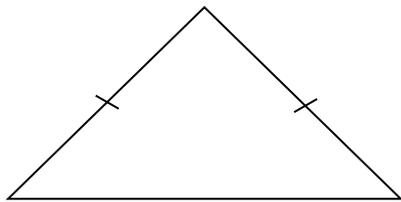


Figure A

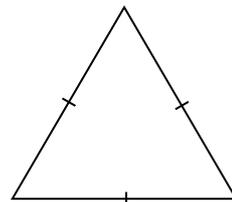


Figure B

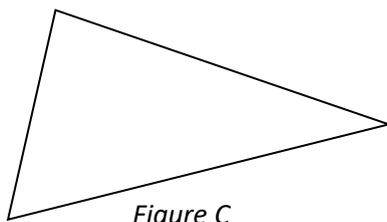


Figure C

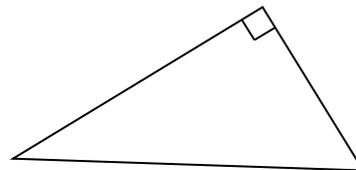
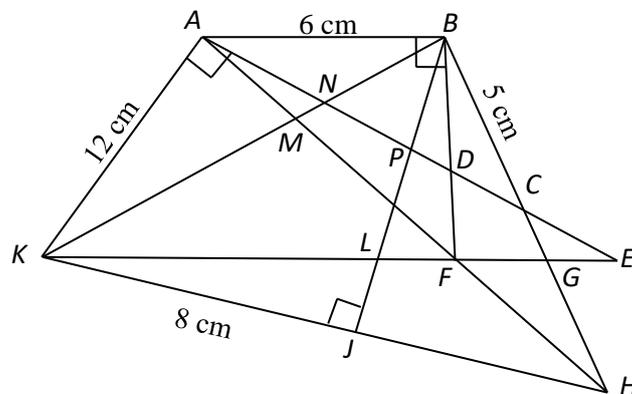


Figure D

Question to evaluate (PC3: Able to identify the suitable triangle to be used in a given complex shape)

Which one of triangles should be used to find the length of KB if $BJ = 6$ cm, $BC = 5$ cm and $BH = 10$ cm.



A	$\triangle KAB$
B	$\triangle KAE$
C	$\triangle KJB$
D	$\triangle KAB$

Question to evaluate (PC4: Able to perform squaring operation)

Which of the following options is correct?

A	$5^2 = 5 \times 2 = 10$
B	$5^2 = 5 \times 5 = 25$
C	$5^2 = 5 + 5 = 10$
D	$5^2 = 5 + 2 = 7$

Question to evaluate (PC5: Able to perform square rooting operation)

Which of the following options is correct?

A	$\sqrt{36} = 36 \div 2 = 18$
B	$\sqrt{36} = \sqrt{6 \times 2} = 3.46$
C	$\sqrt{36} = 6 \times 6 = 25$
D	$\sqrt{36} = \sqrt{6 \times 6} = 6$

Question to evaluate (PC6: Able to solve algebraic equation involving squaring and square rooting operations)

Solve and find the value of x if $169 = 12^2 + x^2$

A	$x = 17.7$
B	$x = 5.00$
C	$x = 12.5$
D	$x = 13.5$

Instructions to content developer:

1. Content Developer must have been certified as competent for development of the content by the Academic Board.
2. Fill in the Content Developer details (incomplete or illegible writing will be abandoned).
3. If all the PCs and the UKs are shown as competent by the candidate, they should be able to solve the topic question given. This will be tested with 10 random candidates.
4. Any words assumed to be understood in writing the PCs and the UKs but not necessarily understood by the candidate without prior knowledge should be clearly indicated in the pre-requisite knowledge section.
5. All variables used in the question or diagram must be typed in "Times New Roman", font size 12 and italicised.
6. All diagrams must be drawn in word, shapes, insert canvass and then drawn inside and grouped before submission.
7. All submissions must be done by using Microsoft Office Word document editable format.
8. All equations must be done using equation editor in Microsoft Office Word.
9. Topic approval must be sought from the DDRC's Academic Board prior to submission.
10. Submission does not constitute the acceptance for payment to be issued to the content developer till it is approved and accepted by the Academic Board