# Knowledge Assessment 1 – 24361 (v3) Apply mathematical processes to BCATS projects

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| **Student name:** |

**Situation** 1. You have been given the following specifications and asked to construct a coffee table. The tabletop is to be constructed out of solid rimu – ex 160 x 25.



Work out the amount of timber (quantities, sizes etc) required. Show your calculations.

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1. From your calculations, complete the following cutting list for the timber for the coffee table.

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| --- | --- | --- | --- | --- | --- |
| **Part** | **Number of** | **Length** | **Width** | **Thickness** | **Total length** |
| Top |  |  |  |  |  |
| Side rails |  |  |  |  |  |
| End rails |  |  |  |  |  |
| Legs |  |  |  |  |  |

**Situation 2**. The drawing below shows the outline of a roof section. From the information given answer the following and show your working.

5.600

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1.200

C

A

B

22°

1. Using Pythagoras theorem, calculate the length of the rafter A – C.

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1. Using the triangle theorem, calculate the angle CAB.

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**Situation 3.** The curved section of a residential garden is to be retained using a simple timber post and rail retaining wall.

1.200

**Job specifications**

Posts 100 x 100 D45 H4 treated

Retaining timber 200 x 50 D45 H4 treated

Concrete Will be purchased

1. Calculate the quantity of timber and concrete materials required. Show your working.

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| 0.6000.600GLGLBackfillRetaining timberGeotextile fabricDrain coilPile hole (200 x 200)Capping (200 x 50) H4 |

1. From your calculations complete the following materials list.

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| --- | --- | --- | --- |
| **Part** | **Number of** | **Size** | **Totals** |
| Rails |  |  |  |
| Capping |  |  |  |
| Posts |  |  |  |

**Situation 4.** A rectangular area that is 3.750m x 5.250m is to be paved with 150 x 150 x 0.40 concrete paving slabs that cost $2.10 each.

The edge restraint timber is 150 x 50 and a decorative timber inlay strip is to be inserted diagonally from corner to corner.

1. Calculate the total number of paver slabs required and how much will they cost.

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1. Calculate the total length of edging timber required.

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1. Calculate the length of decorative inlay strip needed.

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Assessor comments and sign off:

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| **Comments:** |
| Assessor name: ………………………………………………………………………….Assessor signature:…………………………………………………… Date:……………………..   | RESULT:A = Achieved, N = Not Yet Achieved |