

VU22333 Perform intermediate engineering computations

Element/Performance criteria	MHE text	Heading reference	Test bank	Quiz	Case	Worksheets	PowerPoints	Interactives	Animations	YouTube playlist
1. Determine job computation requirements	N/A	N/A			N/A		N/A	N/A	N/A	N/A
1.1 Job requirements are identified from specifications, drawings, job sheets or work instructions			3, 4, 7, 11, 12, 13, 17, 19, 20	1, 4, 5, 12		1, 2, 3, 7, 8, 9				
1.2 Required calculations are determined from job instructions			2, 12, 13, 14, 17, 18, 19, 20, 22	1, 2, 4, 5, 6, 7, 8, 12		1, 2, 3, 7, 8, 9				
2. Determine and apply required formulae and establish estimate	N/A	N/A			N/A		N/A	N/A	N/A	N/A
2.1 Relevant formulae to suit the job requirement is determined			2, 3, 4, 12, 13, 14, 17, 18, 19, 20, 22	1, 2, 4, 5, 6, 7, 8		1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 14, 17, 18, 19				
2.2 An estimation of the expected results, including rounding, off is undertaken										
3. Perform computation and confirm estimate	N/A	N/A			N/A		N/A	N/A	N/A	N/A
3.1 Standard operating procedures (SOPs) are followed at all times										
3.2 Calculation method is made to obtain accurate answer			1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 19, 20, 22	1, 2, 3, 4, 5, 6, 7, 8, 9, 10		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19				
3.3 Answer is checked against estimation										
Required Skills	N/A	N/A			N/A		N/A	N/A	N/A	N/A
Following work instructions, standard operating procedures										
Obtaining and interpreting data from specifications, drawings, job sheets or work instructions to establish required outcomes			7, 12, 13, 17, 20	1, 4, 5, 6, 7, 8, 12		1, 2				
Determining the appropriate calculation method to suit the application			2, 3, 4, 5, 7, 8, 9, 11, 12, 13, 14, 17, 18, 19, 20, 22	1, 2, 3, 4, 5, 6, 7, 8		14, 17, 18, 19				
Performing calculations using:										
· trigonometric ratios			2, 14	1		3				
· sine and cosine rules			2	1		4, 5				
· Pythagoras' theorem			14			6				
· geometric formulae			1, 5	10		7, 8, 9				
Manipulating of formulae to change the subject			3, 4, 7, 10, 13, 17, 22	4, 5, 9		10, 11, 12, 13				
Checking answers using estimations										
Required Knowledge	N/A	N/A			N/A		N/A	N/A	N/A	N/A
Formulae applicable to the determination of perimeter, area and volume of simple geometric shapes			5, 8, 20	2		7, 8, 9, 14				
The reasons for ensuring calculations are carried out using the same units of measurement										
Nomenclature used in trigonometry, Pythagoras' theorem and geometry			1, 2, 5, 14, 18	1, 3, 6, 10		3, 4, 5, 6, 7				
Mathematical principles and order of operations			3, 4, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17, 19, 22	4, 5, 7, 8, 9		1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19				
Techniques and procedures for rounding off figures when estimating approximate answers			7	2, 5, 6		1, 2				
Applications of geometric calculations in manufacturing and engineering situations			2, 14, 18, 22	1		7, 8, 9, 14, 17, 18, 19				