

General Marking Guidance Mathematics

- If a learner has crossed out a response to a question, the work should still be marked unless the learner has replaced it with an alternative answer.
- Markers should apply the mark scheme consistently across all papers marked.
- Markers should mark according to the mark scheme and should apply it positively awarding full marks where the answer meets the mark scheme.
- Where the mark scheme allows a mark for 'any (other) valid response', the marker should judge the response's merits based on the information provided in the assessment materials.
- Where the marker is unsure of how to apply the mark scheme, guidance must be sought from the Principal Examiner.
- Where the mark scheme has responses in brackets – (£) 5.00, the learner will gain the mark whether or not the information within the brackets is present or not as long as the answer is correct.
- Some answers allow follow through marks where the learner has found an incorrect answer in a previous part of the task. If this is the case, the marker must check that the learner's answers are correct and should apply the format of the mark scheme to the learner's response.

The mark scheme is a guide of possible answers that can be accepted, however, if the candidate has an alternative working out system to arrive at the correct answer this will also be accepted and marked accordingly.

Assessment Guidelines

This assessment covers the whole of the Functional Skills standards and a sample of the coverage and range.

| Functional Skills Standard / Performance | Functional Skills Coverage and Range | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| Representing 30-40% Understand routine and non-routine problems in familiar and unfamiliar contexts and situations. | Understand and use positive and negative numbers of any size in practical contexts | ✓ |
| | Carry out calculations with numbers of any size in practical contexts, to a given number of decimal places | ✓ |
| Identify the situation or problems and identify the mathematical methods needed to solve them. | Understand, use and calculate ratio and proportion, including problems involving scale | ✓ |
| | Understand and use equivalences between fractions, decimals and percentages | ✓ |
| | Understand and use simple formulae and equations involving one- or two-step operations | ✓ |
| Choose from a range of mathematics to find solutions. | Recognize and use 2D representations of 3D objects | ✓ |
| | Find area, perimeter and volume of common shapes | ✓ |
| Analysing 30-40% Apply a range of mathematics to find solutions. | Use, convert and calculate using metric and, where appropriate, imperial measures | ✓ |
| | Collect and represent discrete and continuous data, using information and communication technology (ICT) where appropriate | ✓ |
| Use appropriate checking procedures and evaluate their effectiveness at each stage. | Use and interpret statistical measures, tables and diagrams for discrete and continuous data, using information and communication technology (ICT) where appropriate | ✓ |
| | Use statistical methods to investigate situations | ✓ |
| Interpreting 30-40% Interpret and communicate solutions to multistage practical problems in familiar and unfamiliar contexts and situations. | | |
| | Use probability to assess the likelihood of an outcome | ✓ |
| Draw conclusions and provide mathematical justifications | | |

| Question | Mark Available | Acceptable Response | Comment | RAI |
|--------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------|
| Task 1 Q1 | 1 | Chooses a suitable shape e.g. Square, rectangle, circular or composite shape. | | R |
| | 1 | Chooses a suitable scale e.g. 1:50 or 10cm = 5m or 2cm = 1m e.g. 1:100 or 5cm = 5m or 1cm = 1m or any other appropriate scale. A scale of 1:20 is unlikely to fit on the page | | A |
| | 1 | Their scale shown on drawing (e.g. as above) | | R |
| | 1 | All lines drawn correct to their scale | allow ± 1 mm | R |
| | 1 | Scale drawing suitably labelled. | | R |
| | 1 | Candidate demonstrates how the paved patio area is at least 25 m ² | e.g. calculates total area minus pond area - method depends on shape used. | I |
| | Total Marks 6 | | | R=4 A=1 I=1 |

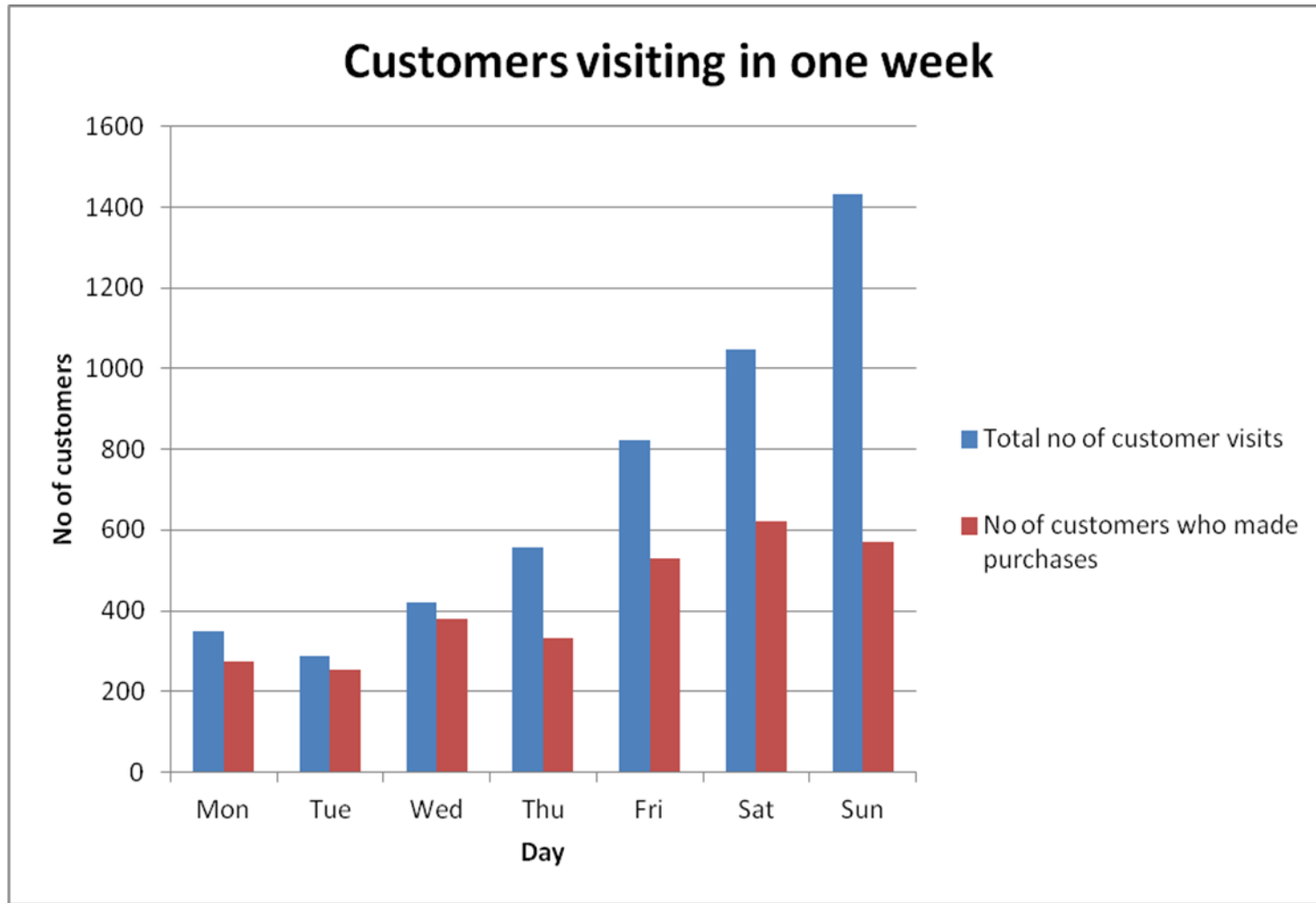
| Question | Mark Available | Acceptable Response | Comment | RAI |
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| Task 1 Q2a | 1 | Candidate identifies the length and width of the rectangular patio required e.g. 5 m × 5 m e.g. 6 m × 5 m e.g. 4 m × 7 m or any other suitable dimensions | | R |
| | 1 | Candidate confirms the area of their patio is 25 m ² or more e.g. 5 m × 5 m = 25 m ² e.g. 6 m × 5 m = 30 m ² e.g. 4 m × 7 m = 28 m ² or any other area 25 m ² or more | 1 mark for area being calculated as 25 m ² or more – unit value must be shown | R |
| | 1 | Candidate selects a supplier and works with the dimension of the chosen slab. e.g. Slab U rite Size : 25 cm × 25 cm = 625 cm ² e.g. Stones R Use Size 50 cm × 100 cm = 5000 cm ² e.g. Pave Tec Size 50 cm × 50 cm = 2500 cm ² or works out how many slabs are needed along one side – depends on the dimensions of their shape | | R |
| | 1 | Correct method selected This can be done either by area or shape and space methods e.g. Patio size 6 m × 5 m and Slab U Rite chosen Area of patio = 30m ² Area of slab = 0.25 × 0.25 = 0.0625m ² No of slabs required = 30 ÷ 0.0625 = 480 | | R |

| Question | Mark Available | Acceptable Response | Comment | RAI |
|-----------------------|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|------------------------|
| Task 1 Q2a | 1 | Conversion of units | To be consistent, cm/m/c | A |
| | 1 | Correct answer | Depends on choice selected | A |
| | 1 | Candidate calculates the cost of the slabs based upon their choices and applies discounts as appropriate. | Must see unit | A |
| | 1 | Candidate identifies the delivery charge based upon their choices and works out total cost e.g. $\text{£}1080 + 0 = \text{£}1080$ e.g. $\text{£}1020 + 0 = \text{£}1020$ e.g. $\text{£}912 + \text{£}25 = \text{£}937$ | Must include delivery charge | R |
| Q2b | 1 | Candidate confirms that the patio can be completed for e.g. $\text{£}937$ which is within the budget of $\text{£}1000$. | | I |
| Q2c | 1 | Suitable check used e.g. $\text{£}937 - \text{£}25 = \text{£}912$ | | A |
| | Total Marks 10 | | | R=5 A=4 I=1 |

| Question | Mark Available | Acceptable Response | Comment | RAI |
|--------------|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------------|
| Task 1 Q3 | 1 | Converts dimensions to metric units. e.g. Length = $10 \times 30.48 = 304.8$ cm or 3.048 m Width = $8 \times 30.48 = 243.84$ cm or 2.4384 m Depth = $0.5 \times 30.48 = 15.24$ cm or 0.1524 m | | R |
| | 1 | Calculates volume of shed base in m^3 e.g. $3.048 \times 2.4384 \times 0.1524 = 1.13267 m^3$ e.g. $304.8 \times 243.84 \times 15.24 \div 1000000 = 1.13267 m^3$ | May be rounded to 1.13 m^3 Allow follow though | A |
| | 1 | Calculates quantity of cement required e.g. $1.13267 \times 320 = 362.45$ Kg | Allow 362.5 | A |
| | 1 | Selects most suitable bag of cement and calculates number of bags required e.g. $362.45 \div 50 = 7.24...$ - rounded up to 8 bags | | I |
| | 1 | Calculates cost of cement e.g. $8 \times \pounds 12.50 = \pounds 100$ | | A |
| | 1 | Calculates cost of sand e.g. $1.13267 \times 825 = 934$ Kg 1 bag will be sufficient which costs $\pounds 39.99$ | | A |
| | 1 | Calculates cost of aggregate e.g. $1.13267 \times 1050 = 1189.3$ Kg 2 bags will be required which costs $2 \times 39.99 = \pounds 79.98$ | | A |
| | 1 | Compares total cost with budget $\pounds 240 - 100 - 39.99 - 79.98 = \pounds 20.03$ left over | 1 mark for explanation that manager is correct cost is $\pounds 20.03$ less than the budget | I |
| | Total Marks 8 | | | R=1 A=5 I=2 |

| Question | Mark Available | Acceptable Response | Comment | RAI |
|-----------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------|
| Task 1 Q4a | 1 | Draws a comparative bar chart | 1 mark for suitable chart, must compare both sets of data - Pie chart and Line Graph not acceptable | R |
| | 1 | Labels chart correctly with a suitable title and x & y axis labels e.g. Title includes quotations e.g. y axis labelled e.g. Number of Quotations e.g. x axis labelled Day | 1 mark for title and x and y axis labels | R |
| | 1 | Includes a key e.g. Total number of customer visits, Number of customers who requested quotations | | R |
| | 1 | Suitable y axis scale used e.g. Max value 1500 | | R |
| | 1 | x axis must include all 7 days e.g. Mon to Sun | y scale must be linear and extend to at least 1450 | R |
| | 1 | Values plotted accurately Actual heights will depend on the scale used. | | I |
| | Total Marks 6 | | | R=5 A=0 I=1 |

Exemplar Chart



| Question | Mark Available | Acceptable Response | Comment | RAI |
|---------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------|
| Task 1 Q4b | 2 | <p>2 comments made about the number of customer visits and quotations</p> <p>e.g. Less than half of the customers requested quotations on Sunday</p> <p>e.g. Most customers requested quotations on Wednesday</p> <p>e.g. Most Customers on Mon, Tues and Wed requested quotations.</p> | <p>1 mark for each valid comment</p> <p>Comments must compare no of customers and number of quotations</p> | I |
| | Total Marks 2 | | | R=0 A=0 I=2 |

| Question | Mark Available | Acceptable Response | Comment | RAI |
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| Task 2 Q1 | 4 | <p>Small Liner Values substituted into formula correctly $V = \frac{3.14 \times 2 \times 2}{2} \times 10 =$ Correct answer obtained 62.8 m³</p> <p>Medium Liner Values substituted into formula correctly $V = \frac{3.14 \times 3 \times 3}{2} \times 15 =$ Correct answer obtained 211.95 m³</p> <p>Large Liner Values substituted into formula correctly $V = \frac{3.14 \times 3.5 \times 3.5}{2} \times 20 =$ Correct answer obtained 384.65 m³</p> | <p>It is only necessary to work out two of the three options to find the polytunnel that meet the requirements - start with the medium one Maximum 4 marks for calculations</p> <p>1 mark for substitution 1 mark for correct answer with Units</p> | I I A A |
| | 1 | <p>Explanation given with numerical justification e.g. Large tunnel used as it is 134.65 m³ larger than needed. e.g. Use medium and small as together it is 24.75m³ larger than needed</p> | | I |
| | Total Marks 5 | | | R=0 A=2 I=3 |

| Question | Mark Available | Acceptable Response | Comment | RAI |
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| Task 2 Q2 | 6 | <p><u>Option 1 - Use of Mean</u> e.g. Flexible Butyl Liners $(5+5+4+5+4+3+3+5+5+4)/10 = 4.3$ e.g. Preformed Ponds $(3+4+4+3+4+4+4+3+2+1)/10=3.2$ e.g. Pond World $(4+4+4+3+3+2+4+4+3+2)/10 = 3.3$ e.g. Sun Liners $(2+1+3+3+4+3+3+1+5+1)/10=2.6$</p> <p><u>Option 2 - Use of Median</u> e.g. Flexible Butyl Liners $(4+5)/2 = 4.5$ e.g. Preformed Ponds $(3+4)/2 = 3.5$ e.g. Pond World $(3+4)/2 = 3.5$ e.g. Sun Liners $(3+3)/2 = 3$</p> | <p>Only award marks for candidate's working for two of these four options</p> <p>All four companies must be calculated</p> <p>1 mark for extracting data accurately 1 mark for correct method for calculation of mean 1 mark for correct answers</p> | R A I R A I |
| | | <p><u>Option 3 - Use of Mode</u> e.g. Flexible Butyl Liners mode is 4 & 5 e.g. Preformed Ponds mode is 4 e.g. Pond World mode is 4 e.g. Sun Liners mode is 3</p> <p><u>Option 4 - Use of Range</u> e.g Flexible Butyl Liners $5-3 = 2$ e.g. Preformed Ponds $4-1 = 3$ e.g. Pond World $4-2 = 2$ e.g. Sun Liners $5-1 = 4$</p> | <p>All four companies must be calculated</p> <p>1 mark for extracting data accurately 1 mark for correct method for calculation of mean 1 mark for correct answers</p> | R A I R A I |

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| | | | | |
|--|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------|
| | 2 | <p>Conclusion Company Chosen with numerical justification</p> <p>e.g. Flexible Butyl Liners has the highest mean score e.g. Flexible Butyl Liners has the highest median e.g. Flexible Butyl Liners has the highest Mode e.g. Flexible Butyl Liners has the most consistent scores with a range of 2</p> | 1 mark for each valid comment relating to the statistical method chosen. | <p> </p> <p> </p> |
| | Total Marks 8 | | | <p>R=2 A=2</p> <p>I =4</p> |

| Question | Mark Available | Acceptable Response | Comment | RAI |
|-----------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------|
| Task 2 Q3 | 1 | Uses correct calculation to work out number of packets of seeds needed $1800 \div 80 = 22.5$ so 23 packets needed | Works out number of packs for 1800 blocks Do NOT accept 22. | R |
| | 1 | Works out cost $23 \times 30.25 = \text{£}695.75$ | Correct answer only and must show units £ | A |
| | 1 | Works out total number of blocks $23 \times 80 = 1840$ | | I |
| | 1 | Uses probability to work out the number of each colour block expected $1840 \times 0,45 = 828$ $1840 \times 35\% = 644$ $1840 \times \frac{1}{5} = 368$ | | A |
| Task 2 Q3b | 1 | Suitable check used e.g. $828 + 644 + 368 = 1840$ | | A |
| | Total Marks 5 | | | R=1 A=3 I=1 |
| | Total Marks 45 | Pass mark for this paper is 32 | R=18 A=17 I= 15 | |

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