NATIONAL SENIOR CERTIFICATE EXAMINATION
MAY 2025

# MATHEMATICAL LITERACY: PAPER II

## MARKING GUIDELINES

Time: 3 hours 150 marks

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**These marking guidelines are prepared for use by examiners and sub-examiners, all of whom are required to attend a standardisation meeting to ensure that the guidelines are consistently interpreted and applied in the marking of candidates' scripts.**

**The IEB will not enter into any discussions or correspondence about any marking guidelines. It is acknowledged that there may be different views about some matters of emphasis or detail in the guidelines. It is also recognised that, without the benefit of attendance at a standardisation meeting, there may be different interpretations of the application of the marking guidelines.**

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| Q1 | Marking guideline | Skills assessed | Topic | Level |
|---|---|---|---|---|
| KEY | **a** accuracy<br>**m** method<br>**mca** method continued accuracy | **ca** continued accuracy<br>**ma** method accuracy<br>**r** rounding | **M Measurement**<br>**M&P Maps & Plan**<br>**P Probability** | **1** KN<br>**2** RP<br>**3** MSP<br>**4** R&R |
| 1.1.1 | Length = 0,14 m<br><br>Width = 140 mm<br><br>Depth = 0,000012 km | Conversion ÷ 100<br><br>Conversion × 10<br><br>Conversion ÷ 100 000 | M | 1 |
| 1.1.2 | Weight of package = 20 000 mg | Conversion × 1 000 | M | 1 |
| 1.1.3 (a) | Area is defined as the total space taken up by a flat (2D) surface or shape of an object.<br><br>**Alternative Answer:**<br><br>The space enclosed by the boundary/perimeter of a plane figure is called its area. | Area definition of 2D objects | M | 1 |
| 1.1.3 (b) | D – Perimeter = 2(length + breadth) | Perimeter of rectangle formula | M | 1 |
| 1.1.3 (c) | B – $mm^2$ | Area unit | M | 1 |
| 1.1.4 (a) | The answer must be measured off the final printed version.<br><br>Length = 69 mm (68 mm–71 mm)<br><br>Height = 38 mm (37 mm–40 mm) | Measuring accurately using a ruler | M | 1 |
| 1.1.4 (b) | Radius = 7 mm | Dividing diameter by 2. | M | 1 |
| 1.1.4 (c) | 1 unit of the model car represents 60 units of the real car.<br><br>**Alternative Answer:**<br>The real car is 60 times bigger than the model car.<br><br>The model car is 60 times smaller than the real car. | Knowledge of unit ratio scale. | M | 1 |

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| 1.1.5 | 1 C<br>2 D<br>3 A<br>4 B | 1st Diagram correct<br>2nd Diagram correct<br>3rd Diagram correct<br>Last diagram is correct | M&P | 1 |
| 1.2.1 | Sandton Drive | Reading from map | M&P | 1 |
| 1.2.2 | Metropolitan or Metro | Knowledge of roads | M&P | 1 |
| 1.2.3 | Bar Scale<br><br>**Alternative Answer:**<br>Graphic scale, Linear scale, Visual scale, Line scale | Knowledge of scale | M&P | 1 |
| 1.2.4 | Northwest | NW Compass direction | M&P | 1 |
| 1.2.5 | 166,5° (166°–168°) | Measuring an angle | M&P | 1 |
| 1.2.6 | 15:07 | Time 15:07 | M&P | 1 |

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| Q2 | Marking guideline | Skills assessed | Topic | Level |
|---|---|---|---|---|
| KEY | **a** accuracy<br>**m** method<br>**mca** method continued accuracy | **ca** continued accuracy<br>**ma** method accuracy<br>**r** rounding | **M Measurement**<br>**M&P Maps & Plan**<br>**P Probability** | **1** KN<br>**2** RP<br>**3** MSP<br>**4** R&R |
| 2.1.1 | N1 | Reading from strip map | M&P | 1 |
| 2.1.2 | Town 1: Winburg<br>Town 2: Ventersburg<br><br>**Alternative Answer**<br>Kroonstad | Reading two towns from the strip map correctly | M&P | 2 |
| 2.1.3 | Total distance = 999 km + 395 km<br>Total distance = 1 394 km<br><br>Mr Makeba is correct. | 999 km<br>Adding 395 km<br>1 394 km<br><br>Mr Makeba is correct. | M&P | 4 |
| 2.1.4 | % day 1 = $\frac{999}{1\,394} \times 100$<br><br>% day 1 = 71,67 ≈ 72% | = 999<br>= 1394<br>= 72% | M&P | 2 |
| 2.1.5 (a) | Total km on one tank = 80 ÷ 100 × 13,8<br>Total km on one tank = 579,71 km<br><br>Hanover is too far 702 km or run out of petrol before Hanover<br>So last stop to fill up Three Sisters is 537 km | = 80 ÷ 100 × 13,8<br>= 579,71 km<br><br>Hanover too far 702 km<br>Three sisters only 537 km | M&P | 4 |

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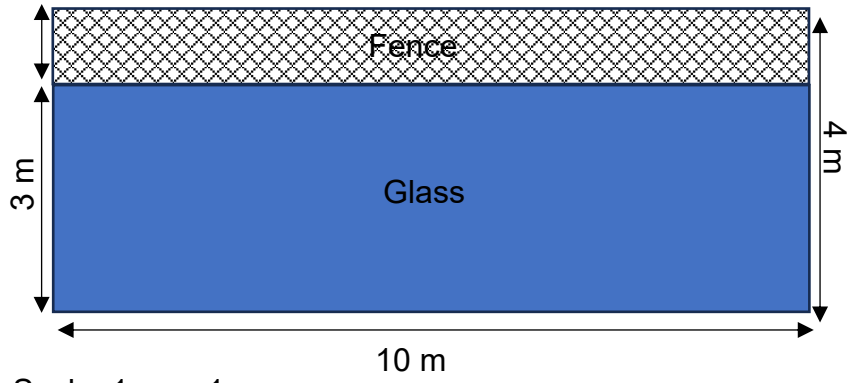
| Q2 | Marking guideline | Skills assessed | Topic | Level |
|---|---|---|---|---|
| KEY | **a** accuracy<br>**m** method<br>**mca** method continued accuracy | **ca** continued accuracy<br>**ma** method accuracy<br>**r** rounding | **M Measurement**<br>**M&P Maps & Plan**<br>**P Probability** | **1** KN<br>**2** RP<br>**3** MSP<br>**4** R&R |
| 2.1.5 (b) | Total distance = 1 394 km + 1 394 km = 2 788 km<br>Total litres of fuel = 2 788 km × $\frac{13,8}{100}$<br>Total litres of fuel = 384,74 litres<br>Cost of fuel = 284,74 × 22,50 = R8 656,74<br>∴ overbudget by R656,74<br><br>**Alternative Answer**<br>Total distance = 1 394 km + 1 394 km = 2 788 km<br>Number of tanks = 2 788 km ÷ 579,71 km = 4 809<br>Cost of a tank of petrol = 80 × R22,50 = R1800<br>Cost = 4 809 × R1800 = R8656,20<br>∴ He is overbudget with R656,74<br><br>**Alternative Answer**<br>Number of litres = R8000 ÷ R22,50<br>= 355,55 liter<br>Dist = 355,55 liter + 13,8 × 100<br>= 2576,48 km<br>Afstand is 2788 km<br>∴ He is overbudget | = 2 788 km<br>= multiply by $\frac{13,8}{100}$<br>= 384,74<br>= R8 656,74<br>= Correct conclusion | M&P | 4 |

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| 2.1.6 | Travel time = $\frac{395\text{ km}}{100\text{ km/h}}$<br>Travel time = 3,95 hours<br><br>Total time = 3h57 min + 35 min = 4h32 min<br>Arrival time = 12:59 pm<br><br>**Alternative Answer**<br><br>Travel time = $\frac{395\text{ km}}{100\text{ km/h}}$<br>Travel time = 3,95 hours<br><br>Total time = 8:27am + 35 min = 9:02 am<br>Arrival time =9:02 am + 57 min = 12:59 pm | = 395 km ÷ 100 km/h<br>= 3,95 hours<br><br>Total time = 4h32 min<br>Arrival time = 12:59 pm | M&P | 3 |
| 2.2.1 | width = 22 × 30,48 + 2 × 2,54<br>= 675,64 cm | = 22 × 30,48<br>= 2 × 2,54<br>= 675,64 cm | M | 3 |
| 2.2.2 | length = 26 × 30,48 + 7 × 2,54<br>= 810,26 cm<br><br>Area = 675,64 × 810,26<br>Area = 547444,0664 $cm^2$ ≈ 547 000 $cm^2$ | =26 × 30,48 + 7 × 2,54<br>= 810,26 cm<br>= 675,64 × 810,26<br>Substituting into the formula<br>= 547 444,0664 $cm^2$<br>= 547 000 $cm^2$ | M | 3 |
| 2.2.3 | Volume = 195 × 115 × 49<br>V = 1 098 825 $cm^3$<br>V = 1 100 000 $cm^3$ | = 195 × 115 × 49<br>Substituting into the formula<br>= 1 098 825 $cm^3$<br>= 1 100 000 $cm^3$ | M | 2 |

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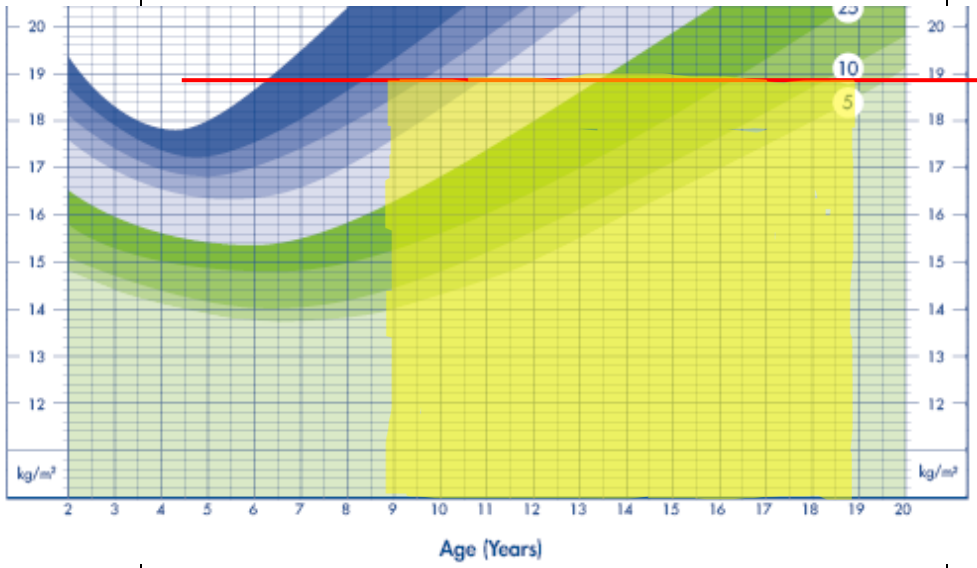
| Q3 | Marking guideline | Skills assessed | Topic | Level |
|---|---|---|---|---|
| KEY | **a** accuracy<br>**m** method<br>**mca** method continued accuracy | **ca** continued accuracy<br>**ma** method accuracy<br>**r** rounding | **M** **Measurement**<br>**M&P** **Maps & Plan**<br>**P** **Probability** | **1** KN<br>**2** RP<br>**3** MSP<br>**4** R&R |
| 3.1.1 | Backwall = 10 m × 3 m = 30 $m^2$<br>Backwalls = 30 $m^2$ × 2 = 60 $m^2$<br><br>Sidewall = 4 m × 3 m – 2 m × 1 m = 10 $m^2$<br>Sidewalls = 10 $m^2$ × 4 = 40 $m^2$<br><br>Total area of class = 60 $m^2$ + 40 $m^2$ = 100 $m^2$<br><br>**Alternative Answer**<br><br>Backwall = 10 m × 3 m = 30 $m^2$<br>Backwalls = 30 $m^2$ × 2 = 60 $m^2$<br><br>Sidewall = 4 m × 2 m + 2 m × 1 m = 10 $m^2$<br>Sidewalls = 10 $m^2$ × 4 = 40 $m^2$<br><br>Total area of class = 60 $m^2$ + 40 $m^2$ = 100 $m^2$<br><br>**Alternative Answer**<br><br>Backwall = 10 m × 3 m = 30 $m^2$<br>Backwalls = 30 $m^2$ × 2 = 60 $m^2$<br><br>Sidewall = 3 m × 2 m + 2 m × 2 m = 10 $m^2$<br>Sidewalls = 10 $m^2$ × 4 = 40 $m^2$<br><br>Total area of class = 60 $m^2$ + 40 $m^2$ = 100 $m^2$ | = 30 $m^2$<br>(using formula)<br>= 60 $m^2$<br>(Both backwalls)<br>= 10 $m^2$<br>(using plans)<br>= 40 $m^2$<br>(All side glass)<br>= 100 $m^2$<br>(Adding up all values) | M | 3 |

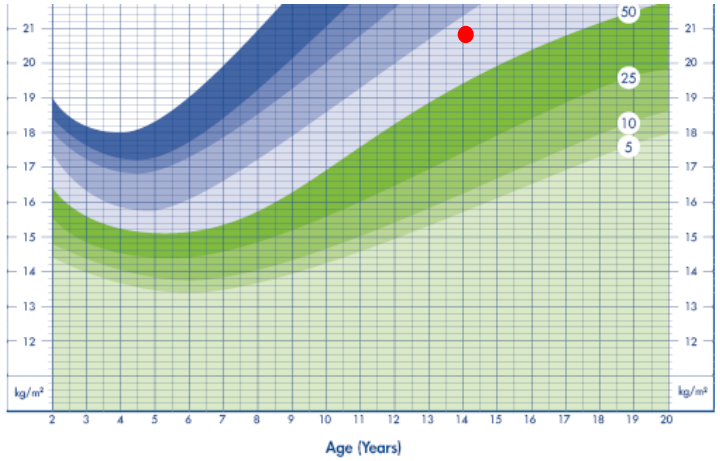
| Q3 | Marking guideline | Skills assessed | Topic | Level |
|---|---|---|---|---|
| KEY | **a** accuracy<br>**m** method<br>**mca** method continued accuracy | **ca** continued accuracy<br>**ma** method accuracy<br>**r** rounding | **M Measurement**<br>**M&P Maps & Plan**<br>**P Probability** | **1** KN<br>**2** RP<br>**3** MSP<br>**4** R&R |
| 3.1.2 | Backwall = 10 m × 1 m = 10 $m^2$<br>Backwalls = 10 $m^2$ × 2 = 20 $m^2$<br><br>Sidewall = 12 m × 3 m + 2 m × 1 m × 4 = 44 $m^2$<br>Sidewall – entrance = 44 $m^2$ – 0,82 × 2 m = 42,36 $m^2$<br>Sidewalls = 42,36 $m^2$× 2 = 84,72 $m^2$<br><br>Total area of fence = 20 $m^2$ + 84,72 $m^2$ = 104,72 $m^2$ | = 10 $m^2$ (using formula)<br>= 20 $m^2$ (Both backwalls)<br><br>= 12 m × 3 m + 2 m × 1 m × 4 (using plans)<br>= 44 $m^2$<br>Calculate entrance<br>Subtract entrance<br>= 42,36 $m^2$ (All side Fence)<br>= 84,72 $m^2$ (both side Fences)<br><br>= 104,72 $m^2$<br>(Adding up all values) | M | 3 |
| 3.1.3 (a) | <br>Scale: 1 cm : 1 m<br>1: 100 | Fence shown<br><br>Glass<br><br>All dimensions shown with units are correct<br><br>Scale 1:100 | M&P | 4 |
| 3.1.3 (b) | Advantage: It is easy to use. It is accurate.<br><br>Disadvantage: If you resize the map, the scale is incorrect/ not accurate, as sometimes ratio scales are rounded. | Easy to use/It is accurate<br>If you resize the map, the scale is incorrect.<br>Not accurate rounding | M&P | 1 |

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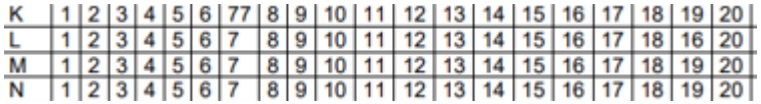
| Q3 | Marking guideline | Skills assessed | Topic | Level |
|---|---|---|---|---|
| KEY | **a** accuracy<br>**m** method<br>**mca** method continued accuracy | **ca** continued accuracy<br>**ma** method accuracy<br>**r** rounding | **M Measurement**<br>**M&P Maps & Plan**<br>**P Probability** | **1** KN<br>**2** RP<br>**3** MSP<br>**4** R&R |
| 3.2.1 | 10 inches : 255 mm<br>1 inch: 25,5 mm | = 10 inches<br>= 255 mm<br>Reading off diagram<br>1 inch: 25,5 mm | M | 2 |
| 3.2.2 | Volume = 3,142 × $3^2$ × 38<br>Volume = 1 074,564 $mm^3$<br>Volume 60 holes = 1 074,564 $mm^3$ × 60<br>= 64 473,84 $mm^3$<br>If the candidate uses π then the answer is 64 465,4813<br>Volume = 3,142 × $\left(\frac{255}{2}\right)^2$ × 38<br>Volume = 1 940 931,225 $mm^3$ (formula used correctly)<br><br>Volume = 1 940 931,225 $mm^3$ – 64 473,84 $mm^3$<br>Volume = 1 876 457,385 $mm^3$<br>Volume = 1 876 457 $mm^3$<br>If the candidate uses π then the answer is 1 876 214 $mm^3$ | = 3,142 × $3^2$ × 38<br>Substitution<br>= 1074,564 $mm^3$<br>= 64 473,84 $mm^3$<br><br>Dividing diameter 127,5<br>= 1 940 931,225 $mm^3$<br><br>Subtract 60 holes<br><br>Rounding to whole number | M | 3 |
| 3.3 | Circumference = 2×3,142 × 15 = 94,26 mm<br>Length = 94,26 × 7 = 659,82 mm<br>Length = 659,82 mm ≈ 660 mm<br>Matt is correct | = 2×3,142 × 15<br>= 94,26 mm<br>= 659,82 mm<br>= 660 cm<br>Saying matt is correct | M | 4 |
| 3.4 (a) | Head Diamond; Head Teardrop; Head Round<br><br>Adidas Diamond; Adidas Teardrop; Adidas Round<br><br>Nox Diamond; Nox Teardrop; Nox Round | All Head<br><br>All Adidas<br><br>All Nox | | |
| 3.4 (b) | P(Round) = $\frac{1}{9}$ | Numerator<br>Denominator | M | 2 |

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| Q4 | Marking guideline | Skills assessed | Topic | Level |
|---|---|---|---|---|
| KEY | **a** accuracy<br>**m** method<br>**mca** method continued accuracy | **ca** continued accuracy<br>**ma** method accuracy<br>**r** rounding | **M Measurement**<br>**M&P Maps & Plan**<br>**P Probability** | **1** KN<br>**2** RP<br>**3** MSP<br>**4** R&R |
| 4.1.1 (a) | The child's mass /weight | Mass/weight | M | 1 |
| 4.1.1 (b) | 133 cm (Range 132–134 cm)<br>1,33 m | Reading value correctly<br>Conversion to metres | M | 2 |
| 4.1.1 (c) | $BMI = \frac{33,4}{1,33^2}$<br>$BMI = 18,88\ kg/m^2$ | = 33,4<br>= 1,33<br>= 18,88 | M | 3 |
| 4.1.2 | Yes, the dietician will be happy as the reading falls into the normal category. | Yes<br>Normal category | M | 4 |
| 4.1.3 | <br>9,5 years–19,5 years | Min age 9,5 years<br>Max age 19,5 years | M | 4 |

| Q4 | Marking guideline | Skills assessed | Topic | Level |
|---|---|---|---|---|
| KEY | **a** accuracy<br>**m** method<br>**mca** method continued accuracy | **ca** continued accuracy<br>**ma** method accuracy<br>**r** rounding | **M** **Measurement**<br>**M&P** **Maps & Plan**<br>**P** **Probability** | **1** KN<br>**2** RP<br>**3** MSP<br>**4** R&R |
| 4.2.1 | <br>Healthy weight | Dot on chart<br>Healthy weight | M | 4 |
| 4.2.2 | $21 = \frac{45}{height^2}$<br>$21 \times height^2 = 45$<br>$height^2 = \frac{45}{21}$<br>$height = \sqrt{\frac{45}{21}}$<br>$height = 1{,}46 \text{ m}$ | Substitution<br>$21 \times height^2 = 45$<br>$\frac{45}{21}$<br>Square root both sides<br>$height = 1{,}46 \text{ m}$ | M | 3 |

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| Q4 | Marking guideline | Skills assessed | Topic | Level |
|---|---|---|---|---|
| KEY | **a** accuracy<br>**m** method<br>**mca** method continued accuracy | **ca** continued accuracy<br>**ma** method accuracy<br>**r** rounding | **M Measurement**<br>**M&P Maps & Plan**<br>**P Probability** | **1** KN<br>**2** RP<br>**3** MSP<br>**4** R&R |
| 4.3.1 | 5 people<br><br>**Alternative answer**<br>1224 | Using info from ticket K16–K20 | M&P | 1 |
| 4.3.2 | <br> | Highlighting on seating plan | M&P | 1 |
| 4.3.3 | Ground floor on the left aisle as this will get them the closest to their seats less people will need to stand up. | Ground floor<br>Left aisle/turn right<br>Closest to your seats | M&P | 4 |
| 4.3.4 | K7<br>AA28<br>AA36<br><br>**Alternative answer**<br><br>LL26<br>LL16<br>L19<br>Row j should be row i<br>Row q should be row qq<br>Row EE not labelled | K7<br>AA28<br>AA36<br>LL26<br>LL16<br>L19<br>Row j should be row i<br>Row q should be row qq<br>Row EE not labelled | M&P | 2 |

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| Q4 | Marking guideline | Skills assessed | Topic | Level |
|---|---|---|---|---|
| KEY | **a** accuracy<br>**m** method<br>**mca** method continued accuracy | **ca** continued accuracy<br>**ma** method accuracy<br>**r** rounding | **M Measurement**<br>**M&P Maps & Plan**<br>**P Probability** | **1** KN<br>**2** RP<br>**3** MSP<br>**4** R&R |
| 4.3.5 | The answer must be measured off the final printed version.<br><br>152 mm : 20 865 mm<br>1:137,27<br><br>Therefore, not accurate.<br><br>**Alternative answer**<br>152 mm × 100<br>15 200 mm<br>∴ Not accurate<br><br>**Alternative answer**<br>20 856 mm ÷ 100<br>208 mm<br>∴ Not accurate | Measuring accurately<br>Identifying the value of the plan<br>Unit form<br>Therefore, not accurate | M&P | 4 |

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| Q5 | Marking guideline | Skills assessed | Topic | Level |
|---|---|---|---|---|
| KEY | **a** accuracy<br>**m** method<br>**mca** method continued accuracy | **ca** continued accuracy<br>**ma** method accuracy<br>**r** rounding | **M Measurement**<br>**M&P Maps & Plan**<br>**P Probability** | **1** KN<br>**2** RP<br>**3** MSP<br>**4** R&R |
| 5.1.1 | Temperature = 41 °C | Reading thermometer correctly | M | 1 |
| 5.1.2 | Dosage = 7,5 ml | Reading from table correctly using 3 years & 15 kg | M | 2 |
| 5.1.3 | Time = 11:33 + 4 h<br>Time = 15:33<br><br>ALTERNATIVE ANSWER<br>3:33 pm | Adding 4 hours<br>15:33 | M | 2 |
| 5.2.1 | $P(Nurofen) = \frac{356}{1\,000} \times 100 = 35,6\%$ | = Numerator 356<br>= Denominator 1 000<br>= 35,6% | P | 2 |
| 5.2.2 | $P(Calpol\ or\ Pedia\ Care) = \frac{328}{1\,000} + \frac{132}{1\,000}$<br>$P(Calpol\ or\ Pedia\ Care) = \frac{460}{1\,000}$<br>$P(Calpol\ or\ Pedia\ Care) = 0,46$ | $= \frac{328}{1\,000}$<br>$= \frac{132}{1\,000}$<br>$= \frac{460}{1\,000}$ Adding<br>= 0,46 | P | 2 |

**Total: 150 marks**

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