



# Percentages

## Mark Scheme 4

|            |                                            |
|------------|--------------------------------------------|
| Level      | IGCSE                                      |
| Subject    | Maths (0580)                               |
| Exam Board | Cambridge International Examinations (CIE) |
| Paper Type | Extended                                   |
| Topic      | Number                                     |
| Sub-Topic  | Percentages                                |
| Booklet    | Mark Scheme 4                              |

**Time Allowed:** 59 minutes

**Score:** /49

**Percentage:** /100

**Grade Boundaries:**

| A*   | A   | B   | C   | D   | E   | U    |
|------|-----|-----|-----|-----|-----|------|
| >85% | 75% | 60% | 45% | 35% | 25% | <25% |

|          |     |          |  |
|----------|-----|----------|--|
| <b>1</b> | 847 | <b>1</b> |  |
|----------|-----|----------|--|

|   |                                                                                                                                                                                                                                      |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2 | <p><b>(a) (i)</b> 1088<br/> <b>(ii)</b> Their <math>1088 \times 2</math><br/> and <math>(3136 - \text{their } 1088) \times 4.5</math><br/> <math>2176 + 9216</math></p> <p><b>(b)</b> 11.9 to 11.9031 www</p> <p><b>(c)</b> 8900</p> | 2<br><br>M1<br>E1<br><br>3 | <p><b>M1</b> for <math>3136 \div (17 + 32)</math> soi by 64 or 2048</p> <p>2048 may be <math>32 \times 64</math></p> <p><b>M2</b> for <math>\frac{(12748 - 11392) \times 100}{11392}</math> oe</p> <p>or <b>M1</b> for <math>\frac{12748 - 11392}{11392}</math> soi by 0.1119</p> <p>or <math>\frac{12748}{11392} (\times 100)</math> soi by 111.9 or 112 or 1.119</p> <p><b>M2</b> for <math>11392 \div 1.28</math> oe<br/> or <b>M1</b> for <math>11392 = 128(\%)</math> oe</p> |
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| 3 | <p><b>(a)</b> 432</p> <p><b>(b) (i)</b> 8970</p> <p><b>(ii)</b> <math>\frac{\text{their } 9867(-7800)}{7800} (\times 100)</math><br/> or <math>1.15 \times 1.10</math></p> <p>26.5 % cao</p> <p><b>(c)</b> 8100</p> <p><b>(d)</b> 562.43 or 562 or 562.4(0) or 562.432</p> | 2<br><br>2<br><br>M2<br><br>A1<br><br>3 | <p><b>M1</b> for <math>756 \div 7 \times 4</math> oe</p> <p><b>M1</b> for <math>7800 \times 1.15</math> oe<br/> After 0 scored, <b>SC1</b> for 1170 as answer</p> <p>Their 9867 is their <b>(b)(i)</b> <math>\times 1.1</math><br/> Implied by 1.265 or 0.265 or 126.5<br/> or <b>M1</b> for their <b>(b)(i)</b> <math>\times 1.10</math> (9867 seen or 2067 seen)</p> <p>www3</p> <p><b>M2</b> for <math>9720 \div 1.2</math> oe<br/> or <b>M1</b> for <math>120\% = 9720</math> oe</p> <p><b>M2</b> for <math>500 \times 1.04^3</math> or alt complete method or<br/> <b>M1</b> for <math>1.04^2</math> or <math>1.04^3</math> oe soi e.g. \$540.80 or<br/> 562.(43..) seen in working</p> |
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|---|----|--|----------------------------------|
| 4 | 18 |  | <b>M1</b> for $21.6 \div 1.2$ oe |
|---|----|--|----------------------------------|

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|---------|------------------------------------------------------------------------------------------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5 (a)   | $240 \div 8 \times 3$ or $240 \div 8 \times 5$ or $\frac{3}{8}$ of 240<br>or $\frac{5}{8}$ of 240 oe | 1 | Accept reverse e.g. $90 : 150 = 3 : 5$ <b>and</b><br>$90 + 150 = 240$                                                                                                                                                            |
| (b) (i) | 5 www 2                                                                                              | 2 | <b>M1</b> for $\frac{100 \times 9}{90 \times 2}$ oe                                                                                                                                                                              |
| (ii)    | 165 www 2                                                                                            | 2 | <b>M1</b> for $99 \div 0.6$ oe                                                                                                                                                                                                   |
| (c)     | 162.24 final answer cao                                                                              | 2 | <b>M1</b> for $150 \times 1.04 \times 1.04$ oe implied by<br>answer 162.2                                                                                                                                                        |
| (d) (i) | 58.67 final answer cao                                                                               | 3 | <b>SC2</b> for 58.7 <b>or</b><br><b>M1</b> for $\frac{150 \times 4 \times 20}{100}$ oe (120)<br><b>then M1</b> (dependent on the first M1)<br>$328.67 - 150 - \text{their } 120$ oe<br>Answers of 208.67 or 208.7 imply first M1 |
| (ii)    | 219 (.1....) www 2                                                                                   | 2 | <b>M1</b> for $\frac{328.67}{150} \times 100$ oe                                                                                                                                                                                 |

|           |                           |    |                                                                                                              |
|-----------|---------------------------|----|--------------------------------------------------------------------------------------------------------------|
| 6 (a) (i) | 2 : 3                     | 1  |                                                                                                              |
| (ii)      | $30 \div 2 \times 3$ o.e. | E1 | Allow 2 : 3 (oe) = 30 : 45                                                                                   |
| (iii)     | 60                        |    | <b>M1</b> for $3 \div 5 \times 100$ oe                                                                       |
| (b)       | 31.83                     |    | <b>SC2</b> for 31.827 as final answer or not spoiled.<br><b>or M1</b> for $\times 1.03$ twice oe             |
| (c)       | 1.5                       |    | <b>M1</b> for $\frac{30 \times r \times 5}{100} = 2.25$ oe<br>or for $2.25 \div 5$ then $\div 30 \times 100$ |

|   |     |  |                                                              |
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| 7 | 161 |  | <b>M1</b> $1.322 \times 10^9 / 8.2 \times 10^8 (\times 100)$ |
|---|-----|--|--------------------------------------------------------------|