



# Numbers

*www.Q8Maths.com*

Qu.	Qu.	Answers	Mark	Part Marks
1	1 (a) (b) (c) (d) (e)	11:14 50 12 280 240	1 2 2 3 2	<b>M1</b> for $(220 + 280) \div 10$ o.e. <b>M1</b> for $21 \div (4 + 3) \times 4$ (or 3) o.e. <b>M1</b> for $0.35 \times$ their 500 (175) <b>M1</b> dependent $\times 1.60$ <b>M1</b> for dividing 264 by 1.1 oe
2	1 (a)  (b) (i) (ii) (c) (d) (i)  (ii)	$240 \div 8 \times 3$ or $240 \div 8 \times 5$ or $\frac{3}{8}$ of 240 or $\frac{5}{8}$ of 240 oe  5 www 2 165 www 2 162.24 final answer cao 58.67 final answer cao  219 (.1....) www 2	1  2 2 2 3  2	Accept reverse e.g. $90 : 150 = 3 : 5$ <b>and</b> $90 + 150 = 240$  <b>M1</b> for $\frac{100 \times 9}{90 \times 2}$ oe <b>M1</b> for $99 \div 0.6$ oe  <b>M1</b> for $150 \times 1.04 \times 1.04$ oe implied by answer 162.2  <b>SC2</b> for 58.7 or <b>M1</b> for $\frac{150 \times 4 \times 20}{100}$ oe (120) <b>then M1</b> (dependent on the first M1) $328.67 - 150 -$ their 120 oe Answers of 208.67 or 208.7 imply first M1  <b>M1</b> for $\frac{328.67}{150} \times 100$ oe
3	1 (a) (i) (ii) (iii)  (b)  (c)	2 : 3 $30 \div 2 \times 3$ o.e. 60  31.83  1.5	1 E1 2  3  2	Allow $2 : 3$ (oe) = $30 : 45$ <b>M1</b> for $3 \div 5 \times 100$ oe  <b>SC2</b> for 31.827 as final answer or not spoiled. <b>or M1</b> for $\times 1.03$ twice oe  <b>M1</b> for $\frac{30 \times r \times 5}{100} = 2.25$ oe or for $2.25 \div 5$ then $\div 30 \times 100$

4	1	<p>(a) (i) 1088 (ii) Their <math>1088 \times 2</math> and <math>(3136 - \text{their } 1088) \times 4.5</math> <math>2176 + 9216</math></p> <p>(b) 11.9 to 11.9031 www</p> <p>(c) 8900</p>	<p>2</p> <p>M1 E1</p> <p>3</p> <p>3</p>	<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</p> <p>or <b>M1</b> for <math>11392 = 128(\%)</math> oe</p>
5	1	<p>(a) 432</p> <p>(b) (i) 8970</p> <p>(ii) <math>\frac{\text{their } 9867(-7800)}{7800} (\times 100)</math> or <math>1.15 \times 1.10</math></p> <p>26.5 % cao</p> <p>(c) 8100</p> <p>(d) 562.43 or 562 or 562.4(0) or 562.432</p>	<p>2</p> <p>2</p> <p>M2</p> <p>A1</p> <p>3</p> <p>3</p>	<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</p> <p>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></p> <p>Implied by 1.265 or 0.265 or 126.5</p> <p>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</p> <p>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</p> <p><b>M1</b> for <math>1.04^2</math> or <math>1.04^3</math> oe soi e.g. \$540.80 or 562.(43..) seen in working</p>
6	1	<p>(a) <math>200 \div 10 \times 3</math> oe <math>200 \div 10 \times 2</math> oe</p> <p>(b) 65</p> <p>(c) 46</p> <p>(d) 0.6(0)</p>	<p>M1 M1</p> <p>2</p> <p>3</p> <p>3</p>	<p><b>M1</b> for <math>\frac{39}{60} \times 100</math> oe 35 is <b>M0</b></p> <p><b>M2</b> for <math>36.80 \div 0.8</math> oe</p> <p>or <b>M1</b> for <math>80\% = 36.80</math> oe</p> <p><b>M2</b> for <math>5(x + 12) + 2x = 64.2</math> oe</p> <p>or <math>(64.2 - 5 \times 12) \div 7</math></p> <p>or <math>5x + 2(x - 12) = 64.2</math> oe or <math>(64.2 + 2 \times 12) \div 7</math></p> <p>or <b>M1</b> for <math>y = x + 12</math> and <math>5y + 2x = 64.2</math></p> <p>or <math>y = x - 12</math> and <math>5x + 2y = 64.2</math></p> <p>After <b>M0</b>, <b>SC1</b> for <math>k(x \pm 12)</math> seen</p>

7	<b>1 (a)</b> <b>(i)</b> $\frac{1380}{62 + 53} \times 62$ <b>(ii)</b> 7.27 (7.271 to 7.272) <b>(iii)</b> 42  <b>(b)</b> <b>(i)</b> 235  <b>(ii)</b> 12.6 (12.58 to 12.59)  <b>(c)</b> 1500	1  1  2  3  3  3	Allow 115 for 62 + 53  M1 for $\frac{3150}{75}$ oe  B2 for angle $ACS = 55$ or angle $ACN = 125$ B1 for 55 seen  M2 for $\frac{4}{6} \times 18.9$ or $4 + 4 + 2 \times 4 \times \cos 55$ or $4 + 4 + 2 \times 4 \times \sin 35$ oe (M1 for $\frac{4}{6}$ soi or $2 \times 4 \times \cos 55$ or $2 \times 4 \times \sin 35$ soi oe)  M2 for $\frac{1380}{1 - 0.08}$ oe (M1 for recognition that 92% = 1380)
8	<b>1 (a)</b> <b>(i)</b> 25 <b>(ii)</b> 15.5 (15.46 to 15.47) <b>(iii)</b> 0.05 oe  <b>(b)</b> 8812.50 final answer    www 3  <b>(c)</b> <b>(i)</b> $2^2 \times 3 \times 5$  <b>(ii)</b> 12 <b>(iii)</b> 240	1 1 2  3  2  2 2	B1 for 1/100 or 0.01 seen  Condone 8812.5 M2 for $7500 \times 5 \times 0.035 + 7500$ oe (implied by final answers 8810, 8812, 8813 or 8812.5(0) seen) or B2 for 1312.5 as final answer or M1 for $7500 \times 5 \times 0.035$ oe (implied by final answers 1310, 1312, 1313)  Allow $2 \times 2 \times 3 \times 5$ M1 for any correct <u>product</u> of 3 factors = 60 seen or correct factor ladder or correct tree (condone 1's on tree/ladder) M1 for $2^2 \times 3$ or $2 \times 2 \times 3$ oe M1 for $2^4 \times 3 \times 5$ or $2 \times 2 \times 2 \times 2 \times 3 \times 5$ oe SC2 only for both correct answers <b>(ii) (iii)</b> reversed
9	<b>1 (a)</b> <b>(i)</b> 34.65 <b>(ii)</b> 41.58  <b>(iii)</b> 264  <b>(b)</b> <b>(i)</b> 1000 <b>(ii)</b> 3650	1 2 3  2 2	M1 for $0.15 \times 277.2$ implied by 41.6 or 41.58 seen and not spoiled M2 for $277.2 \div (1 + 0.05)$ o.e. or M1 for recognition that 105(%) = 277.20  M1 for $2200 \div (2 + 4 + 5) \times 5$ M1 for $2200 \div 44 \times 73$

10	1	<p>(a) (i) 4950 (ii) 9 : 11</p> <p>(b) 1504 564 188</p> <p>(c) (i) 6847.99 or 6848 or 6850</p> <p>(ii) 54.3 (54.33 to 54.35)</p>	<p>2</p> <p>1</p> <p>1</p> <p>1</p> <p>3</p> <p>3ft</p>	<p><b>M1</b> for <math>9000 \times 0.55</math> oe</p> <p>Accept 1 : 1.22 or 0.818 : 1 After 4050 in (a)(i) allow <b>SC1</b> for 11 : 9 etc</p> <p>After 0 scored <b>M1</b> for <math>2256 \div (8 + 3 + 1)</math> soi</p> <p><b>M2</b> for <math>15000 \times 0.77^3</math> oe (6847. (..)ww imp <b>M2</b>) or <b>M1</b> for <math>15000 \times 0.77^2</math> oe soi (8893.5) After 0 scored <b>SC1</b> for art 27913 or 27910 or 27900</p> <p>ft their <math>(15000 - \text{their (c)(i)})/15000 \times 100</math> to 3sf or better <b>but not</b> for negative answer or from 4650 in (c)(i) leading to 69% <b>M2</b> for <math>1 - 0.77^3</math> (0.543..) or their <math>(15000 - \text{their (c)(i)})/15000 (\times 100)</math> or <b>SC2ft</b> their <math>(\text{c)(i)}/15000 \times 100</math> correctly evaluated (45.65 to 45.67 or 45.7) or <b>M1</b> for <math>0.77^3</math> (0.4565..) or their <math>(\text{c)(i)}/15000</math></p>
11	9	<p>(a) (i) <math>2 \times 3 \times 3 \times 7</math> oe</p> <p>(ii) 18</p> <p>(iii) 504</p> <p>(b) 3.028 or 3.029 cao</p> <p>(c) <math>\pi r^2</math> their <math>h = \text{their } V</math></p> <p><math>(r^2 =) \frac{\text{their } V}{\pi \times \text{their } h}</math></p> <p>Sq root</p> <p>Selects 555 or 554.99.. and 11.5</p> <p>3.919 cao</p>	<p>2</p> <p>1</p> <p>2</p> <p>4</p> <p><b>M1</b></p> <p><b>M1</b></p> <p><b>M1</b></p> <p><b>B1</b></p> <p><b>A1</b></p>	<p><b>M1</b> for prime factors of 2,3,3,7 shown condone 1('s) shown as well for method only</p> <p><b>M1</b> for other multiples of 504 or <math>2 \times 2 \times 2 \times 3 \times 3 \times 7</math> oe shown If (ii) and (iii) both correct but reversed allow <b>SC1</b></p> <p><b>B3</b> for 3.0289(85...) or <b>M1</b> for their 105/their 34 (their 105 in range 104 to 106 and their 34 in range 33 to 35) and <b>B1</b> for 104.5 or 34.5 or 34.499.. selected</p> <p>Where <math>V</math> is in range 540 to 560 and <math>h</math> is in range 11 to 13</p> <p>Implies previous method (15.36 implies <b>M2</b>) If using 545 and 12.5 then 13.88 (leading to 3.73) If using 550 and 12 then 14.59 (leading to 3.82)</p> <p>Dep on <b>M2</b>, can be implied from answers</p> <p>Indep</p> <p>If trials then 5 or 0</p>

12	1	<p>(a) (i) 5</p> <p>(ii) 108</p> <p>(b) Correct conversion of money  <math>J \times 0.718</math> or <math>A \div 0.718</math></p> <p>Correct equalising of weights  e.g.  <math>J \times \frac{2[0]}{3[0]}</math> or <math>A \times \frac{3[0]}{2[0]}</math>  or <math>J \div 3</math> and <math>A \div 2</math> or <math>J \div 30</math> and  <math>A \div 20</math></p> <p>97 to 98 or 201[.39...] <b>and</b> Ann  48.9[4..] <b>and</b> 48.2[0] <b>and</b> Ann  or 68[.16] to 68.[2] <b>and</b> 67[.13] <b>and</b>  Ann  4.88... to 4.9 <b>and</b> 4.82 <b>and</b> Ann  or 6.8[1..] to 6.82 <b>and</b> 6.7[1...] <b>and</b>  Ann</p> <p>(c) 302 Final answer</p> <p>(d) 13.6[0]</p> <p>(e) 12</p>	2  2  M1  M1  A2  3  3  1	<p>M1 for <math>\frac{3 \times 15}{(5 + 3 + 1)}</math></p> <p>M1 for <math>60 \times \frac{9}{5}</math> oe</p> <p>Correct conversion of money  soi by 146.83[1] rounded or truncated to 3sf or  134.26[1...] rounded or truncated to 3 sf if  done 1<sup>st</sup></p> <p>Correct equalising of weights or money  Accept other methods that give a pair of  comparable values for method and accuracy  marks  This mark can be implied by values seen  correct to 3 sf or better</p> <p>The underlined values imply M1 for the  money conversion</p> <p>Or A1 for 97 to 98 or 201[.39...]  or a correct pair of values with wrong/no  conclusion</p> <p>M1 for <math>60 \times 60 \times 4</math> soi by 14400 or figs 6048  or figs 3024  and M1 for <math>\div (1000 \times 20)</math> soi  Answer 302.4 implies M2</p> <p>M2 for <math>\frac{15.3[0]}{1.125}</math> oe  or M1 for 15.3[0] associated with 112.5%</p>
13	1	<p>(a) 1134</p> <p>(b) (i) 468.72</p> <p>(ii) 84</p> <p>(c) 262.19 cao</p> <p>(d) 12.5%</p>	3  3  3  3	<p>M2 for <math>\frac{504}{12} \times (12 + 7 + 8)</math> soi by answer of 1130  or B1 for 27 or 42 or 294 or 336 seen</p> <p>M2 for <math>\frac{93}{100} \times 504</math> oe soi by 468.7 or 469  or M1 for <math>\frac{7}{100} \times 504</math> (implied by 35.28)</p> <p>M2 for <math>\frac{64.68}{77} \times 100</math>  or M1 for <math>(100 - 23)\% = 64.68</math></p> <p>M2 for <math>250 \times 1.016^3</math> oe implied by answer 262.2  or better  or M1 for <math>250 \times 1.016^n</math> oe <math>n &gt; 2</math> seen</p> <p>M2 for <math>\frac{324 - 288}{288} \times 100</math>  or M1 for <math>\frac{324}{288} \times 100</math> (112.5) or <math>\frac{36}{288}</math> (0.125)</p>

14	2	(a) 445 final answer www 3  (b) 640 or 4640 4622.5 or 622.5  Alex by 17.5(0) cao final answer www 6	3  2 2  2	<b>M2</b> for $351.55 \div (1 - 0.21)$ oe or <b>M1</b> for $351.55 = (100 - 21) (\%)$  <b>M1</b> for $4000 \times 0.08 \times 2$ oe <b>M1</b> for $4000 \times (1.075)^2$ oe or $4000 \times 0.075 (= 300)$ <b>and</b> $(4000 + \text{their } 300) \times 0.075$ <b>and</b> total interest = the sum of their 2 interests.  <b>M1</b> for S I amount – C I amount or reverse or simple interest – compound interest or reverse
15	5	(a) (£) 2.37 or 2.371 to 2.372 www 2  (b) 154 days 4 hours cao  (c) (i) 9.25 (ii) Lower = 51.3375 final answer Upper = 52.8275 final answer	2  3  1  1 1	<b>M1</b> for $34.95 \div 1.17$ implied by 29.87...or 29.9 or <b>SC1</b> for 2.77 or 2.78 or 2.775  <b>M1</b> for $4.07 \times 10^{12} \div (1.1 \times 10^9)$ implied by figs 37 or 154. (...) <b>A1</b> for 3700 seen or $3.7 \times 10^3$ seen or $154 \frac{1}{6}$ oe or 154 rem 4  1  After 0 scored <b>SC1</b> for answers reversed or 9.35 <b>and</b> 5.65 seen or 51.3375 <b>and</b> 52.8275 seen
16	1	(a) (i) [0]5 38 oe (ii) 92.7 [92.72 to 92.73] oe  (b) (i) 204 or 203. 9[0] to 203.91  (ii) $640 \div (4 + 3 + 1)$ $\times 3 [= 240]$  (iii) 150 www 3  (c) 11 cao www 3	1  2  3  <b>M1</b> <b>M1</b>  3  3	Allow 5h 38 but not 5h 38mins  Allow $92 \frac{8}{11}$ or $\frac{1020}{11}$ <b>M1</b> for $850 \div \text{their } 9 \text{ h } 10 \text{ min in hours}$ oe Allow $850 \div 9.1$ for <b>M1</b>  <b>M1</b> for $160 \times 255 + 330 \times 190 + 150 \times 180$ [130 500] <b>M1</b> dep for $\div 640$  [Can be in either order or shown together] Accept $240 \div 3 \times (4 + 3 + 1) = 640$ for <b>M2</b>  <b>M2</b> for $240 \div 1.6$ oe or <b>M1</b> for recognition of $240 = 100 + 60 \%$  <b>M1</b> for figs 340 or figs $550 \div \text{speed}$ [e.g. figs 188, figs 306] – can be spoiled by further work <b>and M1</b> for correct conversion of units to give answer in seconds e.g. speed = 50 m/s <b>M's independent</b>

17	9	<p>(a) <math>5.79 \times 10^7</math> oe 5.21 39.5</p> <p>(b) (i) 498.6... to 499 (ii) 328 or 328.3...</p> <p>(c) 9.46[0] to <math>9.461 \times 10^{12}</math></p> <p>(d) 63200 or 63235 to 63242 oe</p>	<p>1 1 1 2 2 3 2</p>	<p>Accept ans in range 57890000 to 57900000 5.207 39.50.... or 39.51 Accept answers to greater than 3sf</p> <p><b>M1</b> for <math>1.496 \times 10^8 \div 300\ 000</math></p> <p><b>M1</b> for figs 197 or figs 328[3.. ] seen Or their <math>39.5 \times</math> their <b>(b)(i)</b></p> <p><b>B2</b> for any correct equivalent or <b>M1</b> for <math>300\ 000 \times 3600 \times 24 \times 365</math> oe or for answer figs 946 to 9461</p> <p><b>M1</b> for figs (their <b>(c)</b> <math>\div</math> 1496). Implied by first 3 figs correct</p>
18	1	<p>(a) (i) 5 (ii) 108</p> <p>(b) Correct conversion of money <math>J \times 0.718</math> or <math>A \div 0.718</math></p> <p>Correct equalising of weights e.g. <math>J \times \frac{2[0]}{3[0]}</math> or <math>A \times \frac{3[0]}{2[0]}</math> or <math>J \div 3</math> and <math>A \div 2</math> or <math>J \div 30</math> and <math>A \div 20</math></p> <p>97 to 98 or 201[.39...] <b>and</b> Ann <u>48.9[4..]</u> <b>and</b> 48.2[0] <b>and</b> Ann or 68[.16] to 68.[2] <b>and</b> <u>67[.13]</u> <b>and</b> Ann <u>4.88... to 4.9</u> <b>and</b> 4.82 <b>and</b> Ann or 6.8[1..] to 6.82 <b>and</b> <u>6.7[1...]</u> <b>and</b> Ann</p> <p style="text-align: right;">www</p> <p>(c) 302 Final answer</p> <p>(d) 13.6[0]</p> <p>(e) 12</p>	<p>2 2 <b>M1</b> <b>M1</b> <b>A2</b> 3 3 1</p>	<p><b>M1</b> for <math>\frac{3 \times 15}{(5 + 3 + 1)}</math></p> <p><b>M1</b> for <math>60 \times \frac{9}{5}</math> oe</p> <p><b>M1</b> Correct conversion of money soi by 146.83[1] rounded or truncated to 3sf or 134.26[1...] rounded or truncated to 3 sf if done 1<sup>st</sup></p> <p><b>M1</b> Correct equalising of weights or money Accept other methods that give a pair of comparable values for method and accuracy marks This mark can be implied by values seen correct to 3 sf or better</p> <p>The underlined values imply <b>M1</b> for the money conversion</p> <p>Or <b>A1</b> for 97 to 98 or 201[.39...] or a correct pair of values with wrong/no conclusion</p> <p><b>M1</b> for <math>60 \times 60 \times 4</math> soi by 14400 or figs 6048 or figs 3024 and <b>M1</b> for <math>\div (1000 \times 20)</math> soi Answer 302.4 implies <b>M2</b></p> <p><b>M2</b> for <math>\frac{15.3[0]}{1.125}</math> oe or <b>M1</b> for 15.3[0] associated with 112.5%</p>



19	10	<p>(a) (i) 20</p> <p>(ii) <math>n - 4</math> oe <math>n + 4</math> oe <math>n + 6</math> oe</p> <p>(iii) <math>(n - 4)(n + 4) - (n - 6)(n + 6)</math></p> <p><math>n^2 - 4n + 4n - 16 - (n^2 - 6n + 6n - 36)</math> or better</p> <p>20</p>	<p>1</p> <p>2</p> <p>M1</p> <p>E1</p>	<p>Accept unsimplified</p> <p><b>B1</b> for two correct</p> <p>ft from their algebraic expressions can be implied by <math>n^2 - 4n + 4n - 16 - (n^2 - 6n + 6n - 36)</math> or <math>n^2 - 16 - (n^2 - 36)</math></p> <p>Must have a line of algebra</p> <p>With no errors or omission of brackets</p>
20	1	<p>(b) (i) 24</p> <p>(a) (i) [0]9 15 [am]</p> <p>(ii) 64.9 or 65.[0] or 64.92 to 64.98</p> <p>(iii) 11.76...or 11.8</p> <p>(iv) 80</p> <p>(b) (i) <math>150 \div (11 + 16 + 3)</math> or <math>150 \times 3</math> oe then <math>\times 3</math> or <math>\div 30</math></p> <p>(ii) 11 : 9 final answer</p>	<p>1</p> <p>2</p> <p>1</p> <p>3</p> <p>M1</p> <p>E1</p> <p>2</p>	<p>Any acceptable form of time</p> <p><b>M1</b> for <math>92 \div (1 \text{ and } 25 \text{ mins})</math> or <math>92/85 \times 60</math> oe or <math>92 \div (1.41 \text{ to } 1.42)</math></p> <p><b>M2</b> for <math>92 \div 1.15</math> oe or <b>M1</b> for 115% associated with 92</p> <p>Correct first step</p> <p>Correct conclusion</p> <p><b>M1</b> for <math>8.25 : (15 - 8.25)</math> oe For <b>M1</b> e.g. allow <math>1 : 0.818</math> [0.8181 to 0.8182] or <math>1.22 : 1</math> [1.222...] <b>After M0, SC1</b> for 9 : 11 as final answer</p>

21	1	<p>(a) (i) [0]8 15</p> <p>(ii) <math>\frac{1.8}{27} \times 60 [= 4]</math> oe</p> <p>(b) (i) 275</p> <p>(ii) 73.3[3...]</p> <p>(iii) 25</p>	<p>1</p> <p>M2</p> <p>3</p> <p>3</p> <p>2</p>	<p>M1 for <math>\frac{1.8}{27}</math> oe [0.0667 or better]</p> <p>M2 for <math>\frac{15-4}{4} \times 100</math> or <math>\frac{15}{4} \times 100 - 100</math> oe or M1 for <math>\frac{15-4}{4}</math> or <math>\frac{15}{4} \times 100</math> or oe 375</p> <p>M2 for <math>\frac{1.8}{15} \times 60 [=7.2 \text{ min}]</math> and <math>\frac{27 - \text{their } 7.2}{27} \times 100</math> oe or M1 for <math>\frac{1.8}{15} \times 60 [=7.2 \text{ min}]</math> or final answer of 26.6[6...] or 26.7</p> <p>M1 for <math>\frac{9}{\text{figs } 36}</math> oe</p>
----	---	---	---	--

22	1	<p>(a) (i) <math>\frac{6}{5+6+3} \times 560</math> [= 240]</p> <p>(ii) 120</p> <p>(b) 90</p> <p>(c) (i) 96120 final answer</p> <p>(ii) 187.5[0] final answer</p> <p>(d) 184[.2....]</p> <p>(e) 69.4 and 69[.0] cao</p>	2  1  2  2  3  3  3	<p>Accept 'of' used instead of <math>\times</math>  <b>M1</b> for <math>560 \div (5 + 6 + 3)</math></p> <p><b>M1</b> for <math>\frac{3}{8} \times 240</math> oe</p> <p><b>M1</b> for <math>their(a)(ii) \times 75 + (560 - their(a)(ii)) \times 198</math> oe</p> <p><b>M2</b> for <math>\frac{198}{1+0.056}</math> oe  or <b>M1</b> for <math>(100 + 5.6)[\%] = 198</math> oe seen</p> <p><b>M2</b> for <math>\frac{36 \times 0.75 - 9.5}{9.5} \times 100</math> oe  or <b>M1</b> for <math>\frac{36 \times 0.75}{9.5} \times 100</math> or <math>36 \times 0.75 - 9.5</math> [17.5] used implied by answer 84.2  or <b>SC1</b> for final answer 284[.2...]</p> <p><b>SC2</b> for one correct or both correct but reversed  <b>M1</b> for two of 10.85, 10.95, 23.65 or 23.75 seen  or <math>2(23.7 + 10.9) + 4(0.05)</math>  or <math>2(23.7 + 10.9) - 4(0.05)</math></p>
23	1	<p>(a) 2814 final answer</p> <p>(b) 257.95 final answer</p> <p>(c) (i) 280.5[0] final answer</p> <p>(ii) 375</p> <p>(d) 1605.89 or 1605.9[0]</p> <p>(e) 23.1 or 23.07 to 23.08</p>	2  2  2  3  3  3	<p><b>M1</b> for <math>2345 \div 5</math> soi by 469 or ans = 2810</p> <p><b>M1</b> for <math>2345 \times 0.11</math> oe or ans = 258</p> <p><b>M1</b> for <math>330 \times (1 - 0.15)</math> oe or ans = 281</p> <p><b>M2</b> for <math>330 \div (1 - 0.12)</math> oe  Or <b>M1</b> for <math>330 = (100 - 12)\%</math> oe</p> <p><b>M2</b> for <math>1500 \times (1 + 0.023)^3</math> oe soi by 1605.898751  or <math>1500 \times 1.07(05\dots)</math>  Or <b>M1</b> for <math>1500 \times (1 + 0.023)^2</math> oe</p> <p><b>M2</b> for <math>\frac{325 - 250}{325} \times 100</math> oe  Or <b>M1</b> for <math>\frac{325 - 250}{325}</math> soi by 0.2307... 3sf or better  or <math>\frac{250}{325} \times 100</math> soi by 76.9...</p>

24	1	<p>(a) (i) <math>\frac{2}{5}</math> cao</p> <p>(ii) 3 : 2 cao</p> <p>(b) (i) 1.22</p> <p>(ii) 1.3 [0] nfw</p> <p>(c) 33.6[0]</p>	<p>1</p> <p>1</p> <p>2</p> <p>3</p> <p>2</p>	<p><b>M1</b> for <math>86.38 - 28 \times 1.56</math></p> <p><b>M2</b> for <math>1.56 \div 1.2</math> oe <b>or M1</b> for <math>1.56 = 120\%</math> soi</p> <p><b>M1</b> for <math>(667 - 314.2) \div 10.5</math> oe</p>
25	1	<p>(a) (i) 3216 Final answer</p> <p>(ii) 1307 Final answer</p> <p>(b) 4.5[%] nfw</p> <p>(c) A by 31.05... or 31.04 to 31.05 or 31.[0] 31.1[0]</p>	<p>2</p> <p>2FT</p> <p>2</p> <p>5</p>	<p><b>M1</b> for <math>(18900 - 5500) \times 0.24</math> oe</p> <p><b>FT</b> <math>(18900 - \textit{their (a)(i)}) \div 12</math> correctly evaluated <b>M1</b> for <math>(18900 - \textit{their (a)(i)}) \div 12</math></p> <p><b>M1</b> for <math>\frac{19750.50}{18900} [-18900]</math> or <math>\frac{19750.50 - 18900}{18900}</math></p> <p><b>M1</b> for <math>1500 \times 4.1/100 \times 3</math> [+ 1500] oe <b>M1</b> for <math>1500 \times 1.033^3</math> [- 1500] oe <b>A1</b> for 1684.5 or 184.5 <b>or</b> 1653[.45..] or 153[.45..] <b>and M1dep</b> for subtraction of <i>their</i> amounts or <i>their</i> interests</p>
26	7	<p>(a) 14 10 or 2 10 pm final answer</p> <p>(b) 5 hours 45 minutes cao</p> <p>(c) (i) 798 or 798.2 to 798.4....</p> <p>(ii) <math>1.82 \times 10^5</math> or <math>1.815 \times 10^5</math> to <math>1.816 \times 10^5</math></p> <p>(d) 8600</p>	<p>2</p> <p>2</p> <p>2</p> <p>4</p> <p>3</p>	<p><b>M1</b> for (0)8 10 oe or answer 14 hours and 10 minutes or answer 2 10 [am]</p> <p><b>M1</b> for 345 [mins] seen or for <math>805 / 7 \times 3</math> oe or 5.75 seen</p> <p><b>M1</b> for <math>10712 / 13 \frac{25}{60}</math> or <math>10712 \div 13.4...</math></p> <p><b>B3</b> for 182000 or 181500 to 181600 seen <b>or M2</b> for 10712000/59 oe <b>or M1</b> for figs 10712/figs 59 soi by figs 182 or figs 1815 to 1816 <b>and B1 FT</b> for their number of litres correctly converted to standard form rounded to 3sf or better</p> <p><b>M2</b> for <math>10148 \div 1.18</math> oe <b>or M1</b> for 10148 associated with 118[%]</p>

27	1	<p>(a)</p> <p>(i) 45</p> <p>(ii) 20</p> <p>(iii) 23.4 or 23.38 to 23.41</p> <p>(b) 128</p>	2	<p><b>M1</b> for <math>5 \times 63 \div 7</math></p> <p><b>2</b> <b>M1</b> for <math>5 \times 56 \div 14</math></p> <p><b>3</b> <b>M2</b> for <math>\frac{13 \times 4.9 - 48.8}{13 \times 4.9} \times 100</math>  or <math>\frac{4.9 - 48.8 \div 13}{4.9} \times 100</math></p> <p>Or</p> <p><b>M1</b> for <math>\frac{13 \times 4.9 - 48.8}{13 \times 4.9}</math> or <math>\frac{48.8}{13 \times 4.9} \times 100</math> or 76.6[...]</p> <p><b>4</b> Using fractions (percentages / decimals):</p> <p><b>M1</b> for <math>\frac{3}{4} \times \frac{3}{8} \left[ = \frac{9}{32} \right]</math> or <math>\frac{75}{100} \times 37.5</math> [= 28.125%]</p> <p><b>A1</b> for <math>\frac{9}{32}</math> or 28.125[%]</p> <p><b>M1</b> for <math>36 \div \frac{9}{32}</math> oe</p> <p>or <math>36 \times \frac{100}{28.125}</math> oe</p> <p>Partial percentages</p> <p><b>M1</b> for (Remaining) <math>\frac{100 \times 36}{37.5}</math> [= 96]</p> <p><b>A1</b> for 96</p> <p><b>M1</b> for <math>96 \div \frac{75}{100}</math> oe</p> <p><b>SC1</b> for 288</p>
----	---	---	---	---

28	1	<p>(a) <math>240 \div (5 + 7) \times 7</math> [=140] oe</p> <p>(b) 2 : 3 final answer</p> <p>(c) 144</p> <p>(d) 89.99 cao mark final answer</p> <p>(e) 4.08</p>	<p><b>M2</b></p> <p><b>2</b></p> <p><b>3</b></p> <p><b>3</b></p> <p><b>3</b></p>	<p><b>M1</b> for <math>240 \div (5 + 7)</math> or <math>240 \times 7</math></p> <p><b>B1</b> for ratio of form <math>2x : 3x</math> seen or <b>SC1</b> for 3 : 2</p> <p><b>M2</b> for <math>120 + \frac{120 \times 4 \times 5}{100}</math> oe</p> <p>or <b>M1</b> for <math>\frac{120 \times 4 \times 5}{100}</math></p> <p><b>B2</b> for 89.9[8...] shown but not spoiled or answer 90[.0...] nfw</p> <p>or <b>M1</b> for <math>80 \times \left(\frac{104}{100}\right)^3</math> oe</p> <p>If <b>M1</b> spoiled by adding 80 or subtracting 80 then <b>SC1</b> for answers 169.99 or 9.99</p> <p><b>M2</b> for <math>\frac{200 \times r \times 2}{100} = 200 \times 1.04^2 - 200</math> oe</p> <p>or <b>M1</b> for <math>200 \times 1.04^2</math> [216.3[2]] oe</p> <p>or <math>\frac{200 \times r \times 2}{100}</math> oe</p>
29	1	<p>(a) 62100[.00] Final answer</p> <p>(b) 39300</p> <p>(c) 20436</p> <p>(d) 4</p> <p>(e) 25545</p>	<p><b>2</b></p> <p><b>3</b></p> <p><b>2</b></p> <p><b>3</b></p> <p><b>2</b></p>	<p><b>B1</b> for 62074[. 35] or 62070</p> <p><b>M2</b> for <math>45981 \div 1.17</math> oe or <b>M1</b> for 45981 associated with 117 [%]</p> <p><b>M1</b> for <math>45981 \div (3+4+2)</math> or <math>45981 \times 4</math></p> <p><b>M2</b> for <math>\frac{1.5 \times 1000}{330}</math> oe</p> <p>or <b>M1</b> for figs 4545... or 455</p> <p><b>M1</b> for <math>45981 \times \frac{5}{9}</math></p>

30	1	<p>(a) (i)</p> <p>(ii)</p> <p>(iii)</p> <p>(b) (i) <math>6 \times 0.5 \times 2 \times 2 \times \sin 60</math> oe</p> <p>10.38 to 10.39[...] [= 10.4]</p> <p>(ii) 4.67 to 4.68</p> <p>(iii) 273</p>	<p>2</p> <p>2</p> <p>3</p> <p>M2</p> <p>A1</p> <p>2</p> <p>4</p>	<p>M1 for <math>72 \div (7 + 2 + 3)</math></p> <p>M1 for <math>13.5 \div 3 \times (7 + 2 + 3)</math> oe</p> <p>M2 for <math>8.4[0] \div 1.12</math> oe or M1 for 112[%] associated with [\\$]8.4[0] oe</p> <p>M1 for a correct relevant area inside the hexagon e.g. <math>0.5 \times 2 \times 2 \sin 60</math> oe</p> <p>Must see 10.38 to 10.39[...]</p> <p>M1 for <math>10.4 \times \text{figs } 45</math> [figs 467 to 468]</p> <p>M1 for <i>their</i> (b)(ii) <math>\times 1250 \div 1000</math> A1 FT for <i>their</i> (b)(ii) <math>\times 1250 \div 1000</math> evaluated to at least 3 sf</p> <p>M1dep on previous M1 for <i>their</i> mass in tonnes (rounded up) <math>\times 45.5[0]</math> if between 6 and 10 or for <i>their</i> mass in tonnes (rounded up) <math>\times 47[.00]</math> if between 1 and 5 or for <i>their</i> mass in tonnes (rounded up) <math>\times 44[.00]</math> if over 10</p>
31	1	<p>(a) (i) 49.5[0]</p> <p>(ii) 66</p> <p>(b) 2 hours 39 mins 45 secs</p> <p>(c) 18.75 <b>final answer</b></p>	<p>3</p> <p>1FT</p> <p>3</p> <p>3</p>	<p>M2 for <math>16.5[0] \div 5 \times (5 + 3 + 7)</math> or M1 for <math>16.5[0] \div 5</math></p> <p>FT <i>their</i> (a)(i) <math>\div 75 \times 100</math> to 3 sf or better</p> <p>B2 for 159.75 oe, e.g. 2.6625 [h] 9585 [s] or M1 for 3 hrs 33 mins oe / (2 + 9 + 1) oe</p> <p>M2 for <math>16.5[0] \div 0.88</math> oe or M1 for 16.5[0] associated with 88[%]</p>
32	2	<p>(a) (i) <math>\frac{920}{8} \times 7</math> [=805] oe</p> <p>(ii) 30.8 or 30.76 to 30.77</p> <p>(b) 1211 final answer</p>	<p>1</p> <p>2</p> <p>5</p>	<p><math>\frac{2990}{26} \times 7</math> [= 805]</p> <p>M1 for <math>\frac{8}{(11+8+7)}</math> [<math>\times 100</math>]</p> <p>B4 for 13 926.5[0] [area A total sales] or B3 for 11 040 [area B] <b>and</b> 10 867.50 [area C] or 21 907.5 [area B + area C] or B2 for 11 040 [area B] <b>or</b> 10 867.50 [area C] or M1 for 736 [B tickets] and M1 for 483 [C tickets]</p> <p>After 0 scored SC2 for answer of 1196 or SC1 for 13754 (A total sales)</p>

33	1	<p>(a) (i) <math>\frac{13}{13+8+3} \times 12000</math> with no subsequent errors</p> <p>(ii) 4000</p> <p>(b) <math>2 \times 6500 + 5 \times \text{their(a)(ii)} + (12000 - 6500 - \text{their(a)(ii)})</math></p> <p>or  <math>(13 \times 2 + 8 \times 5 + 3 \times 1) \times 500</math></p> <p>(c) 37 500</p> <p>(d) <math>\frac{11}{26}</math> cao</p> <p>(e) 89 500</p>	<p>1</p> <p>1</p> <p>2</p> <p>3</p> <p>2</p> <p>1</p>	<p><b>B1</b> for any two of  <math>2 \times 6500</math>, <math>5 \times \text{their(a)(ii)}</math>,  <math>(12000 - 6500 - \text{their(a)(ii)})</math> seen  or  <math>13 \times 2 + 8 \times 5 + 3 \times 1</math></p> <p><b>M2</b> for <math>\frac{34500}{100-8} \times 100</math> oe  or  <b>M1</b> for 34500 associated with <math>(100 - 8)\%</math></p> <p><b>M1</b> for any correct simplified version of  <math>\frac{2750}{6500}</math></p>
34	1	<p>(a) 1848 final answer</p> <p>(b) (i) 1750</p> <p>(ii) <math>64\frac{2}{7}</math> or 64.3 or 64.28 to 64.29</p> <p>(c) (i) 33 : 20 oe</p> <p>(ii) 236</p> <p>(d) 17[.00]</p>	<p>2</p> <p>2</p> <p>1</p> <p>2</p> <p>3</p> <p>3</p>	<p><b>M1</b> for <math>1650 \times \left(1 + \frac{12}{100}\right)</math> oe</p> <p><b>M1</b> for <math>\frac{500}{9-5} [\times 5]</math> or <math>[\times 9]</math> or any equation which would lead to <math>4x = 500</math> or <math>4x = 2500</math> or <math>4x = 4500</math> or <math>4x = 7000</math> when simplified</p> <p><b>B1</b> for 33 : 6 or 20 : 6 or 5.5 oe seen or 3.33...oe seen  or <b>M1</b> for two ratios with a common number of children implied by <math>20k</math> and <math>33k</math> seen, <math>k &gt; 0</math></p> <p><b>M2</b> for <math>\frac{24}{2} \times 11 + \frac{24}{3} \times 10</math> oe  or <math>((3 \times 11) + (2 \times 10)) \times 24 \div 6</math>  or <math>\frac{6}{6+20+33} \times x = 24</math>  or <b>M1</b> for <math>\frac{24}{2} \times 11</math> or <math>\frac{24}{2} \times 13</math> soi  or <math>\frac{24}{3} \times 10</math> or <math>\frac{24}{3} \times 13</math> soi oe or <math>24 \div 6</math> soi</p> <p><b>M2</b> for <math>20.40 \div \left(1 + \frac{20}{100}\right)</math> oe  or <b>M1</b> for <math>(100 + 20)\%</math> oe associated with 20.40 seen</p>



35	2	<p>(a) (i) <math>640 \times 1.02^6</math> oe = 720.7...</p> <p>(ii) 3.02 or 3.020 to 3.024... nfw</p> <p>(b) 874.8[0] final answer</p>	<p>M1 B1</p> <p>4</p> <p>2</p>	<p>Must be seen</p> <p>M3 for <math>[x = ] \sqrt[4]{721 \div 640}</math> or better (implied by answer of 1.03[02...] or <math>r = 0.0302[4...]</math> or M2 for <math>(their\ x)^4 = 721 \div 640</math></p> <p>or M1 for <math>640 \times (their\ x)^4 = 721</math> oe</p> <p>M1 <math>1200 \times (1 - 0.1)^3</math> oe</p>
36	1	<p>(a) 6</p> <p>(b) 21.45 cao final answer</p> <p>(c) 16.5[0] nfw</p> <p>(d) 1.34 cao final answer</p> <p>(e) (i) 750</p> <p>(ii) 4.7 cao</p> <p>(iii) 6</p> <p>(f) 8950</p> <p>(g) 210</p> <p>(h) 160000</p>	<p>3</p> <p>2</p> <p>3</p> <p>2</p> <p>1</p> <p>3</p> <p>2</p> <p>1</p> <p>2</p> <p>3</p>	<p>B2 for <math>5\frac{1}{4}</math> or 5.25 shown in working isw</p> <p>or M1 for <math>\frac{3}{4} \times 7</math> soi by answer 5</p> <p>M1 for <math>17.16 \times 0.25</math> or <math>17.16 \times 1.25</math></p> <p>M2 for <math>17.16 \div 1.04</math> oe</p> <p>or M1 for 17.16 associated with 104[%] oe isw</p> <p>M1 for <math>13.32 \div 0.72</math> soi by 18.5[0] or for any correct complete longer method</p> <p>If zero scored, SC1 for 0.96 [euros] seen</p> <p>B2 for 4.658 to 4.66</p> <p>or M2 for <math>\sqrt{their\ (e)(i) \div 11\pi}</math></p> <p>or M1 for <math>11\pi r^2 = their\ (e)(i)</math></p> <p>M1 for <math>2^3</math> or <math>\frac{1}{2^3}</math> oe seen</p> <p>or for <math>\pi \times (2 \times their\ (e)(ii))^2 \times 22</math></p> <p>If zero scored, SC1 for answer 6000</p> <p>M1 for <math>0.07 \times 3000</math></p> <p>M2 for <math>2 \times 60 \times 100^3 \div 750</math> oe</p> <p>or M1 for figs 16 as answer or <math>100^3</math> seen</p>

37	1	<p>(a) (i) <math>\frac{512}{7+11+14} \times 14</math></p> <p>(ii) 112</p> <p>(b) 10 100</p> <p>(c) 19</p> <p>(d) (i) 4093000</p> <p>(ii) <math>4.093 \times 10^6</math></p> <p>(e) 198 or 198.1 to 198.2</p>	<p>M2</p> <p>1</p> <p>2</p> <p>2</p> <p>1</p> <p>1FT</p> <p>3</p>	<p>or M1 for <math>\frac{512}{7+11+14}</math></p> <p>M1 for <math>224 \times 45</math> soi by 10080</p> <p>M1 for <math>224 \div 12</math> soi by 18.66 to 18.67 or 18.7 or <math>18\frac{2}{3}</math></p> <p>FT their (d)(i)</p> <p>M2 for <math>\frac{8.2-2.75}{2.75} \times 100</math> oe or M1 for <math>\frac{8.2}{2.75} \times 100</math> or <math>\frac{8.2-2.75}{2.75}</math></p>
38	1	<p>(a) (i) 3.9[0]</p> <p>(ii) <math>\frac{13}{18}</math> cao</p> <p>(iii) 24</p> <p>(b) 109 cao</p>	<p>2</p> <p>2</p> <p>3</p> <p>3</p>	<p>M1 for <math>2.6 \div 2</math></p> <p>B1 for any correct unsimplified fraction</p> <p>M2 for <math>9 \div 0.375</math> oe or M1 for associating 9 with <math>(100 - 62.5)\%</math></p> <p>B2 for 108.5 to 108.6 or M1 for <math>250 \times \left(1 - \frac{8}{100}\right)^{10}</math> oe</p>
39	1	<p>(a) <math>\frac{1.5}{100} \times 450\,000</math> oe</p> <p>(b) 6000</p> <p>(c) 376.25 cao final answer</p> <p>(d) 22.4</p> <p>(e) 5184</p> <p>(f) 9023</p>	<p>1</p> <p>3</p> <p>2</p> <p>2</p> <p>2</p> <p>3</p>	<p>Accept equivalent methods</p> <p>M2 for <math>\frac{6750}{112.5} \times 100</math> oe or M1 for 112.5% associated with 6750 oe</p> <p>B1 for 21.5 and 17.5 seen</p> <p>M1 for <math>200^2</math> or <math>2^2</math> seen oe</p> <p>M1 for <math>12 \times 16 \times 27</math></p> <p>M1 for <math>12000 \div 1.33</math> A1 for 9022.55 to 9022.56 or 9022.6 or 9020 B1indep for their answer rounded to the nearest euro if possible</p>

40	1	<p>(a) <math>\frac{8}{8+15+9} \times 640</math> oe</p> <p>(b) 300 and 180</p> <p>(c) 10 nfw</p> <p>(d) <math>\frac{7}{24}</math></p>	1	<p>With no errors seen</p> <p>2 <b>B1</b> for each or <b>SC1</b> for answers reversed</p> <p>2 <b>M1</b> for <math>160 \div 15.25</math> implied by 10.5 or 10.49... nfw</p> <p>3 <b>M1</b> for <math>\frac{3}{8} + \frac{1}{3}</math> oe</p> <p><b>M1dep</b> on previous <b>M1</b> for 1 – <i>their</i> <math>(\frac{3}{8} + \frac{1}{3})</math> oe</p>
41	5	<p>(a) 6250</p> <p>(b) 4441</p>	3	<p><b>M2</b> for <math>\frac{6000}{100-4} \times 100</math> oe or <b>M1</b> for 6000 associated with 96 [%]</p> <p>3 <b>B2</b> for 4441.1 to 4441.2 or 4440 or <b>M1</b> for <math>\frac{6000}{1.351}</math></p>

www.Q8Maths.com

42	1	<p>(a) (i) 48</p> <p>(ii) 32.4[0]</p> <p>(iii) 13 30</p> <p>(iv) 24</p> <p>(b) 660</p> <p>(c) 663.9[0]</p> <p>(d) 1.5[0]</p>	<p>2</p> <p>1</p> <p>2</p> <p>3</p> <p>3</p> <p>2</p> <p>3</p>	<p><b>M1</b> for <math>\frac{72}{3}</math></p> <p><b>M1</b> for <math>\frac{72 - \text{their}(ii) - 8.4}{72}</math> oe</p> <p><b>M2</b> for <math>\frac{19.2}{0.8}</math> oe or <b>M1</b> for recognising 19.2 is 80%</p> <p><b>M2</b> for <math>\frac{550 \times 2 \times 10}{100} + 550</math> oe or <b>M1</b> for <math>\frac{550 \times 2 \times 10}{100}</math> oe</p> <p><b>M1</b> for <math>550 \times 1.019^{10}</math> oe</p> <p><b>M2</b> for <math>\sqrt[10]{\frac{638.3[0]}{550}}</math> oe or <b>M1</b> for <math>550 \times m^{10} = 638.3[0]</math></p>
43	1	<p>(a) (i) 1245 [pm]</p> <p>(ii) 788 or 787.8 to 788.1</p> <p>(b) (i) 4230[.00]</p> <p>(ii) 22.2 or 22.2...</p> <p>(c) (i) 3808 final answer</p> <p>(ii) 800</p> <p>(d) (i) 1130</p> <p>(ii) \$146.9[0] final answer</p>	<p>2</p> <p>2</p> <p>2</p> <p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>2FT</p>	<p><b>B1</b> for 2045 seen or 845 pm seen or [0]1 35 seen</p> <p><b>M1</b> for <math>8800 \div 11\text{h } 10 \text{ mins}</math> oe</p> <p><b>M1</b> for <math>2350 \div 5</math> oe</p> <p><b>M1</b> for <math>2240 \times \frac{100 + 70}{100}</math> oe</p> <p><b>M2</b> for <math>2240 \div \frac{100 + 180}{100}</math> oe or <b>M1</b> for 2240 associated with 280%</p> <p><b>M3</b> for <math>(826.5[0] - 12 \times (28 + 6.5[0])) \div 1.25</math> seen or <b>M2</b> for <math>826.5[0] - 12 \times (28 + 6.5[0])</math> seen or <b>M1</b> for <math>12 \times (28 + 6.5[0])</math> seen</p> <p><b>FT</b> <i>their</i>(d)(i) <math>\times 0.13</math> correctly evaluated If answer not exact to at least 3 sf or better <b>M1</b> for <i>their</i> (d)(i) <math>\div 10 \times 1.3</math></p>

44	<p>1 (a) (i) 36 600</p> <p>(ii) <math>16\frac{2}{3}</math> or 16.7 [16.66 to 16.67]</p> <p>(b) 1 231 708 final answer nfw</p> <p>(c) 27.2[0] nfw</p>	<p>3</p> <p>1</p> <p>5</p> <p>5</p>	<p><b>M2</b> for <math>6100 \div 2 \times (2 + 7 + 3)</math> oe or <b>M1</b> for <math>6100 \div 2</math> soi</p> <p><b>M4</b> for <math>5964 \times 15 + 28400 \times 35 + 8236 \times 18</math> or <b>M3</b> for <math>5964 \times 15</math> and <math>28400 \times 35</math> or for <math>5964 \times 15 + 42\,600 \times \textit{their decimal} \frac{2}{3}</math> <math>\times 35 + (42\,600 - 5964 - 42\,600 \times \textit{their decimal} \frac{2}{3}) \times 18</math> or <b>M2</b> for <math>5964 \times 15</math> or <math>28400 \times 35</math> or for <math>42\,600 \times \textit{their decimal} \frac{2}{3} \times 35</math> or <b>M1</b> for <math>0.14 \times 42\,600</math> or <math>42\,600 \div 3 \times 2</math></p> <p><b>M2</b> for <math>23.80 \div 0.7</math> oe or <b>M1</b> for 23.80 associated with 70% oe and <b>M2</b> for <i>their</i> <math>(23.80 \div 0.7) \times 0.8</math> or <b>M1</b> for <i>their</i> <math>(23.80 \div 0.7) \times 0.2</math></p>
45	<p>1(a)(i) 275.31</p> <p>1(a)(ii) 3202</p> <p>1(b) 17.[0] or 17.00 to 17.01</p> <p>1(c)(i) 40</p> <p>1(c)(ii) 11.9 or 11.86 to 11.87</p> <p>1(d) 150 [million] oe</p> <p>1(e) 250 nfw</p>	<p>2</p> <p>3</p> <p>2</p> <p>3</p> <p>3</p> <p>2</p> <p>3</p>	<p><b>M1</b> for <math>90 \times 23.15 + 1885 \times 13.5</math> oe</p> <p><b>M2</b> for <math>\frac{198.16 - 90 \times 0.245}{0.055}</math> oe <b>M1</b> for <math>90 \times 0.245</math> or <math>90 \times 24.5</math> oe</p> <p><b>M1</b> for <math>13.5 \times \left(1 + \frac{8}{100}\right)^3</math></p> <p><b>M2</b> for <math>\frac{7.7 - 5.5}{5.5} [\times 100]</math> oe or <math>\frac{7.7}{5.5} \times 100</math> or <b>M1</b> for <math>\frac{7.7}{5.5}</math> oe</p> <p><b>M2</b> for <math>\sqrt[3]{\frac{7.7}{5.5}}</math> oe or <b>M1</b> for <math>5.5 \times x^3 = 7.7</math> oe</p> <p><b>M1</b> for <math>390</math> [million] <math>\div (5 + 2 + 6)</math></p> <p><b>M2</b> for <math>258.25 \div ((100 + 3.3) \div 100)</math> or <b>M1</b> for 258.25 associated with 103.3[%]</p>

46	1(a)	2915	2	<b>M1</b> for $10\,494 \div (13 + 5)$ oe
	1(b)	1056	2	<b>M1</b> for $384 \div (10 - 6)$ oe
	1(c)(i)	52.2 or 52.17...	2	<b>M1</b> for $20 \div 23$ or $20 \times 60$ or $23 \div 60$ isw If zero scored, <b>SC1</b> for answer 52.6 (from use of 0.38)
	1(c)(ii)	63[.0] or 63.03 to 63.05...	5	<b>M4</b> for $\frac{\text{their } 52.17... - 32}{32} \times 100$ oe or <b>M3</b> for $\frac{\text{their } 52.17... - 32}{32}$ oe or $\frac{\text{their } 52.17...}{32} \times 100$ oe OR <b>B2</b> for $\frac{5}{8}$ [hours] oe or 37.5 [minutes] or <b>M1</b> for $20 \div 32$ or better and <b>M2</b> for $\frac{\text{their } 37.5 - 23}{23} \times 100$ oe or <b>M1</b> for $\frac{\text{their } 37.5 - 23}{23}$ or $\frac{\text{their } 37.5}{23} \times 100$
	1(d)	0.06 final answer nfw	3	<b>M1</b> for $11.99 \div 0.9276$ or $12.99 \times 0.9276$ <b>A1</b> for 12.93 or 12.925 to 12.926
1(e)	9750	3	<b>M2</b> for $7605 \div \left(1 - \frac{22}{100}\right)$ oe or <b>M1</b> for $(100 - 22)[\%]$ correctly associated with 7605 seen	
47	1(a)	$\frac{9}{9+7+4} \times 680$	1	
	1(b)	238 136	3	<b>B2</b> for 238 or 136 or <b>M1</b> for $\frac{7}{9+7+4} \times 680$ oe or $\frac{4}{9+7+4} \times 680$ oe seen
	1(c)	272	2	<b>M1</b> for $306 \div 1.125$
	1(d)	1.37	3	<b>M2</b> for $(17.56 - 5 \times 2.69) \div 3$ or <b>M1</b> for $17.56 - 5 \times 2.69$ or <b>B1</b> for 13.45 [cost of apples]
	1(e)	40.8[0]	3	<b>3FT</b> for $0.3 \times \text{their } 136$ from part (b) or <b>M2</b> for $\text{their } 136\left(\frac{1}{2} + \frac{1}{5}\right)$ or better or <b>M1</b> for $\text{their } 136 \times \frac{1}{2}$ or $\text{their } 136 \times \frac{1}{5}$ or <b>B1</b> for 68 or 27.2 or $\frac{3}{10}$ or 0.3 seen

48	3(a)	6.06 or 6.060 to 6.061	3	<b>M2</b> for $\frac{82500 - 77500}{82500} [\times 100]$ oe or <b>M1</b> for $\frac{77500}{82500} [\times 100]$ soi
	3(b)	13 674 cao	3	<b>M1</b> for $12000 \left(1 + \frac{2.2}{100}\right)^6$ <b>A1</b> for 13673.7...
49	1(a)(i)	85	1	
	1(a)(ii)	455	2	<b>M1</b> for $260 \div 20 \times 35$ oe
	1(a)(iii)	61	3	<b>B2</b> for 61.5... seen or <b>M1</b> for $2000 \div 650$ soi or for $\frac{x}{2000} = \frac{20}{650}$ oe or other attempt at scaling up with 650 or for $650 \div 20$ oe
	1(b)(i)	40	3	<b>M2</b> for $\frac{1.89 - 1.35}{1.35} [\times 100]$ oe or $\frac{1.89}{1.35} \times 100$ oe or <b>M1</b> for oe $\frac{1.89}{1.35} [\times 100]$ soi
	1(b)(ii)	1.75 nfww	3	<b>M2</b> for $1.89 \div \left(\frac{100 + 8}{100}\right)$ or better or <b>M1</b> for 1.89 associated with 108 [%]
	1(c)	10.1 or 10.06...	3	<b>M2</b> for $\sqrt[3]{\frac{20.8}{15.6}}$ oe or <b>M1</b> for $15.6 \times k^3 = 20.8$ oe
	1(d)(i)	14:15	3	<b>B2</b> for correct unsimplified 3 term ratio A: B: C or correct unsimplified two term ratio A : C  or <b>M1</b> for attempt to find common multiple of 4 and 10 or other common value for B  or for $7 \times \frac{4}{10}$ oe or $3 \times \frac{10}{4}$ oe
	1(d)(ii)	147	3	<b>M2</b> for $\frac{45}{15} (14 + 20 [+15])$ oe or $45 \div 3 \times 4 + (45 \div 3 \times 4) \div 10 \times 7 [+45]$  or <b>M1</b> for $45 \div 3$ oe or $45 \div$ <i>their</i> <b>(d)(i)</b> value for C shown

50	1(a)	16.5 or 16.49...	3	<b>M2</b> for $\frac{1.13 - 0.97}{0.97} [\times 100]$ oe or $\frac{1.13}{0.97} \times 100$ oe or <b>M1</b> for $\frac{1.13}{0.97}$ oe
	1(b)(i)	35	2	<b>M1</b> for $60 \div (5 + 7)$
	1(b)(ii)	140	1	
	1(c)	\$1.26 final answer	3	<b>B2</b> for 1.259... or 1.26 but not as final answer or <b>M1</b> for $2.25 \div 0.9416$  If 0 scored, <b>SC1</b> for $1.13 \times 0.9416$
	1(d)	15[.0...]	3	<b>M2</b> for $^{21}\sqrt{\frac{58000}{1763000}}$ oe or <b>M1</b> for $58000 = 1763000 (k)^{21}$
	1(e)	1239.75	2	<b>B1</b> for $43 + 0.5$ or $28 + 0.5$ oe seen
51	1(a)(i)	14, 10	2	<b>M1</b> for $24 \div (7 + 5)$
	1(a)(ii)	$\frac{3}{350}$	2	<b>B1</b> for correct fraction not in lowest terms
	1(a)(iii)	120	1	
	1(b)(i)	10.2[0]	2	<b>M1</b> for $\frac{15}{100} \times 12$ oe or better
	1(b)(ii)	45	2	<b>M1</b> for $\frac{38.25}{1 - \frac{15}{100}}$ oe
	1(c)(i)	85	2	<b>M1</b> for $\frac{500 \times 1.7 \times 10}{100}$ oe
	1(c)(ii)	203 or 202.5 to 202.6	2	<b>M1</b> for $200 \times \left(1 + \frac{0.0035}{100}\right)^{365}$
	1(c)(iii)	1.9	3	<b>M2</b> for $\sqrt[6]{\frac{559.78}{500}}$ or <b>M1</b> for $500 \left(1 + \frac{r}{100}\right)^6 = 559.78$



52	2(a)	1 : 5 : 12	2	<b>M1</b> for 2 : 10 : 24 or 7 : 35 : 84 or $\frac{1}{18} : \frac{5}{18} : \frac{12}{18}$
	2(b)(i)	266 and 95	3	<b>B2</b> for 266 or 95 or 266 and 95 reversed or <b>M1</b> for $\frac{114}{6}$
	2(b)(ii)	15	2	<b>M1</b> for $\frac{114 - 96.9}{114} [\times 100]$ oe or $\frac{96.9}{114} \times 100$
	2(c)(i)	2h 50min	1	
	2(c)(ii)	636	2	<b>M1</b> for $1802 \div \text{their } 2\text{h } 50\text{min}$
53	3(a)(i)	43	1	
	3(a)(ii)	65	1	
	3(a)(iii)	13	1	
	3(b)	80	3	<b>M2</b> for $\frac{400}{18} \times \frac{60 \times 60}{1000}$ oe Or <b>M1</b> for $\frac{400}{18}$ or for <i>their</i> speed in m/s $\times \frac{60 \times 60}{1000}$ or for $\frac{400}{1000}$ and $\frac{18}{60 \times 60}$ soi

www.Q8Maths.com