LITERACY AND NUMERACY TEST FOR INITIAL TEACHER EDUCATION STUDENTS

Numeracy

Practice Test

Score tables, report and solutions

ACER

Literacy and Numeracy Test for Initial Teacher Education Students

Numeracy Practice Test (PDF Print Version) Score Equivalence Table, Report and Worked Solutions

To compare your achievement on the numeracy practice test (PDF print version) against the test standards and obtain feedback, complete the following steps.

Step 1: Record and correct your responses to the numeracy practice test questions in Table1.

Table 1: Response record

Question	Your response	Correct response	Outcome (correct, incorrect)	Content sub-domain	Calculator sub-domain
1		280		Number and Algebra	Available
2		B		Number and Algebra	Available
3		75		Number and Algebra	Available
4		F, F, T		Number and Algebra	Available
5		D		Measurement and Geometry	Available
6		45		Measurement and Geometry	Available
7		750		Number and Algebra	Available
8		9		Statistics and Probability	Available
9		T, F		Statistics and Probability	Available
10		T, T, F		Statistics and Probability	Available
11		T, F, F		Statistics and Probability	Available
12		28		Number and Algebra	Available
13		3		Number and Algebra	Available
14		30		Statistics and Probability	Available
15		10		Number and Algebra	Available
16		T, T		Measurement and Geometry	Available
17		D		Statistics and Probability	Available
18		3		Statistics and Probability	Available
19		F, T		Statistics and Probability	Available
20		212.73		Number and Algebra	Available
21		6		Number and Algebra	Available
22		167 000		Number and Algebra	Available
23		253.35		Number and Algebra	Available
24		N, F		Statistics and Probability	Available
25		120		Measurement and Geometry	Available
26		B		Measurement and Geometry	Available
27		T, F		Statistics and Probability	Available
28		3		Measurement and Geometry	Available
29		8		Statistics and Probability	Available
30		T, T, F		Statistics and Probability	Available

31		C		Number and Algebra	Available
32		15		Number and Algebra	Available
33		T, F, T		Number and Algebra	Available
34		C		Measurement and Geometry	Available
35		B		Measurement and Geometry	Available
36		T, T		Statistics and Probability	Available
37		8500		Number and Algebra	Available
38		610		Number and Algebra	Available
39		76		Measurement and Geometry	Available
40		T, T		Statistics and Probability	Available
41		C		Statistics and Probability	Available
42		7 and 139.65		Number and Algebra	Available
43		21		Number and Algebra	Available
44		C		Number and Algebra	Available
45		T, F		Measurement and Geometry	Available
46		D		Statistics and Probability	Available
47		7		Statistics and Probability	Available
48		T, F, N		Statistics and Probability	Available
49		96 and 4		Statistics and Probability	Available
50		2.5		Number and Algebra	Available
51		3.7		Number and Algebra	Available
52		T, T		Measurement and Geometry	Available
53		15		Number and Algebra	Not available
54		F, T		Measurement and Geometry	Not available
55		18		Measurement and Geometry	Not available
56		70		Measurement and Geometry	Not available
57		2.7		Measurement and Geometry	Not available
58		12		Number and Algebra	Not available
59		F, T		Number and Algebra	Not available
60		15		Measurement and Geometry	Not available
61		D		Number and Algebra	Not available
62		T, T		Number and Algebra	Not available
63		600		Number and Algebra	Not available
64		D		Number and Algebra	Not available
65		C		Number and Algebra	Not available

Step 2: Total your correct responses overall and for each sub-domain, then complete Table 2.

Table 2: Total scores overall and by sub-domain

Domain/Sub-domain	**Your score**	**Maximum score**
Numeracy (overall)		65
Number and Algebra		30
Measurement and Geometry		16
Statistics and Probability		19
Calculator available		52
Calculator not available		13

Step 3: Use your scores from Table 2 to locate your indicative achievement against the standard in Table 3 overall and for each sub-domain.

Table 3: Score equivalence table*

Numeracy Domain/ Sub-domain	Your score is indicative of achievement **below** the standard	Your score is indicative of achievement **around** the standard	Your score is indicative of achievement **above** the standard
Overall	0–37	38–49	50–65
Number and Algebra	0–17	18–23	24–30
Measurement and Geometry	0–9	10–12	13–16
Statistics and Probability	0–10	11–14	15–19
Calculator available	0–29	30–39	40–52
Calculator not available	0–8	9–10	11–13

*Note: The scores in this table are indicative, not determinative, and apply only to the numeracy *practice* test as a guide. Decisions relating to achievement against the standard on the actual test are based on scaled scores. The ranges of scores in Table 3, for achievement 'around the standard' are carefully chosen to help ensure that advice is appropriately targeted. Scores on the practice test are reliable guides only for candidates on their first attempt and *before* they view the worked solutions. For further clarification see the 'Explanatory statement' and 'Information about the actual test' below.

Step 4: Interpret the results

Candidates who receive the statement:

- **'Your score is indicative of achievement around the standard'**, for either the overall domain or a sub-domain, are advised that some additional revision or study may be appropriate. A good place to start is the practice test questions and the worked solutions to the practice test in the Appendix.
- '**Your score is indicative of achievement below the standard'** are advised that considerable revision or study may be appropriate. These candidates are:
  - advised to seek support from their higher education provider to help reach the test standard
  - directed to the practice test questions and the worked solutions to the practice test in the Appendix.

    - advised to consider delaying their sitting of the test to a future test window and developing a study plan with their higher education provider.
- **'Your score is indicative of achievement above the standard'** can be reasonably confident but should *not* assume that they are certain to meet the standard when they complete the actual test. These candidates may also consider completing some revision and/or study and viewing the practice test questions and the worked solutions to the practice test in the Appendix.

The sub-domain information in the related summary statements above may be helpful in determining the focus of further study before sitting the test again. Descriptions of achievement in each band of each sub-domain, together with illustrative sample questions, can be found in the Described Proficiency Scale available at https://teacheredtest.acer.edu.au/results.

Explanatory statement

The practice test, including related scores and statements, has been created to support initial teacher education students with their preparation for the test. While the practice test reflects the actual test in content, processes, contexts, item types, difficulty, number of questions, and time available, there are important differences between the two.

The practice test:

- is not supervised
- is not done under test conditions
- does not have questions that have been trialled in an actual test by initial teacher education students, so their difficulty has been estimated using the judgements of numeracy experts rather than by using candidate data
- reports on raw scores (number of correct questions) only, not scaled scores (standardised scores).

Because of these differences, the practice test, resultant scores, and the statements (set out above) related to those scores **are indicative only** and are not determinative of a prospective candidate's ultimate performance in the actual test or ability in a particular skill area. Therefore, the practice test can only be used as practice for the actual test and not for any other purpose (such as appealing, qualifying, or academic results).

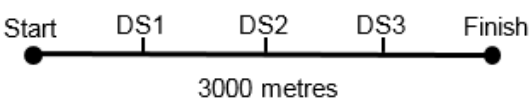
Information about the actual test

It should be noted that the standard for the *actual* numeracy test may be achieved without reaching the standard in every sub-domain. A candidate's numeracy scale score is derived from the candidate's performance on *all* questions from *all* sub-domains. The number of questions in each sub-domain is *not* equal. As a consequence of this, a candidate's numeracy scale score is influenced by the *relative* contribution of the candidate's score on each of the sub-domains and is *not* a simple average of the sub-domain scores.

Appendix: Suggested Worked Solutions for the Practice Numeracy Test

These worked solutions are provided to assist candidates understand the underlying concepts in each question and to suggest appropriate methods. It is likely that many candidates will use different methods that are also correct.

Table 4: Suggested worked solutions

Qn	Suggested worked solution
1	The correct answer is $280 because annual means yearly and there are 12 months in one year. The total monthly fees are $20 × 12 = $240. Adding the $40 membership fee gives an annual total of $280.
2	The correct answer is B because the monthly fee is a fee for one month and must be multiplied by the number of months, n, to calculate the fee for n months. This calculation must be performed before the joining fee is added. Option B shows the correct order. Even though reading from left to right, it may appear that, in option B, the addition is done first, the order of operations in mathematics ensures that multiplication is done before addition. The brackets in option B are not strictly required but are provided for additional clarification.
3	The correct answer is $75 because the total cost for a new 3-month membership at the Basic level is $20 + ($10 × 3) = $20 + $30 = $50. The total cost for a new 3-month membership at the Gold level is $50 + ($25 × 3) = $50 + $75 = $125. The difference is $125 – $50 = $75.
4	The correct answer for part A is 'False' because 50% of 23 401 892 is less than 12 million and the infographic tells us that only 49.3% were male. The correct answer for part B is 'False' because the combined total of all people over 15 years is 81.3% (65.6% + 15.7%) and that is less than 5 times the number of people aged 14 years and under (5 x 18.7 = 93.5). The correct answer for part C is 'True' because 66.7% of people were born in Australia, and therefore 33.3% of people were not born in Australia. 33.3% is very close to one-third.
5	The correct answer is D ($75 000) because the weekly gross household income given in the infographic is $1438. There are 52 weeks in one year, so the yearly income is 52 × $1438 = $74 776, which is closest to $75 000.
6	The correct answer is $45 because the duration from 9:30 am to midday is two-and-a-half hours. Under the conditions, the hirer must pay a full hour for each part of an hour, in this case for 3 hours. $15 × 3 = $45
7	The correct answer is 750 because there are four spaces as shown in the diagram.  3000 ÷ 4 = 750

8	The correct answer is 9 because there are three groups that include waiting times of at least 10 minutes (10 minutes or more). They are 10 to less than 12 minutes, 12 to less than 14 minutes and 14 to less than 16 minutes. The first of these groups has a frequency of 4 students, the second has a frequency of 3 students and the third has a frequency of 2 students. In total, this is 9 students.
9	The correct answer for part A is 'True' because there are 183 values in total. Therefore the median value must be the 92nd value, as it would be exactly in the middle if all the waiting times were ordered from smallest to largest. There are 8 values in the 0 –<2 group of waiting times, there are 34 total values in the 0 –<2 and 2 –<4 groups (8 + 26) and there are 93 total values in the 0 –<2, 2 –<4 and 4 –<6 groups (8 + 26 + 59). Therefore, the 92nd value must be in the 4–<6 minutes groups, so it is less than 4 minutes. The correct answer for part B is 'False' because there are 183 values, therefore the total waiting time must be divided by 183.
10	The correct answer for part A is 'True' because 26% + 61% = 87% which is greater than three-quarters (75%). The correct answer for part B is 'True' because, apart from the upper middle quarter, the differences between the percentages of the students at the school and the percentages of the students in Australia are smaller in 2012 than in 2018. There is very little difference in the upper middle quarter percentages for both 2012 and 2018. The correct answer for part C is 'False' because, by estimation alone, 28% of 172 is less than 26% of 495. Alternatively, by calculation, 28% of 172 = 0.28 × 172 = 48 and 26% of 495 = 0.26 × 495 = 129 to the nearest student.
11	The correct answer for part A is 'True' because students who were not allowed to use electronic devices achieved about 87% of correct responses compared to 80% for students who were allowed to use electronic devices. The correct answer for part B is 'False' because although the height of the unit exam column for students who were not allowed to use electronic devices is more than double the corresponding classroom quizzes column, the percentage value is not double. This is because the vertical axis is broken, indicating the bottom part of each bar is not shown. Students not allowed to use electronic devices achieved about 85% for the unit exam, which is not double the 68% achieved for classroom quizzes. The correct answer for part B is 'False' because significant differences in achievement between the two groups was also found on the unit exam because the error bars do not overlap.
12	The correct answer is 28 because when 8 is substituted for the number of teams into the formula it can be evaluated as follows: total number of games = 8 × (8 – 1) ÷ 2 = 8 × 7 ÷ 2 = 56 ÷ 2 = 28

<table>
<tr><td>13</td><td>The correct answer is Team 3 because, in this pattern, Team 1 stays in its allocated position and each of the other teams rotates one position around the table in a clockwise direction for each round. The pattern is shown by the arrows in the table below.

Round 3
<table><tr><th>Game 1</th><th>Game 2</th><th>Game 3</th><th>Game 4</th></tr><tr><td>Team 1</td><td>Team 7</td><td>Team 8</td><td>Team 2</td></tr><tr><td>Team 6</td><td>Team 5</td><td>Team 4</td><td>Team 3</td></tr></table>
Round 4
<table><tr><th>Game 1</th><th>Game 2</th><th>Game 3</th><th>Game 4</th></tr><tr><td>Team 1</td><td>Team 6</td><td>Team 7</td><td>Team 8</td></tr><tr><td>Team 5</td><td>Team 4</td><td>Team 3</td><td>Team 2</td></tr></table></td></tr>
<tr><td>14</td><td>The correct answer is 30 because if 95% of 1000 people are vaccinated then 5% of 1000 people (50 people) are not vaccinated. A reproduction rate of 60% means that 30 people (60% of the 50 people) who are not vaccinated are likely to become infected with the disease.</td></tr>
<tr><td>15</td><td>The correct answer is 10% because 0.03 is one-tenth of 0.3 and one-tenth as a percentage is 10%.
Alternatively, $\frac{0.03}{0.3} \times 100\% = 0.03 \times 100\% \div 0.3 = \frac{0.03 \times 100}{0.3}\% = \frac{3}{0.3}\% = 10\%$</td></tr>
<tr><td>16</td><td>The correct answer for part A is 'True' because two serves of the pasta contains 668 mg × 2 = 1336 mg, which exceeds 920 mg, the upper value of the NHMRC range.
The correct answer for part B is 'True' because 1 g = 1000 mg. The upper value of the NHMRC range, 920 mg, is less than 1000 g.</td></tr>
<tr><td>17</td><td>The correct answer is D (class D) because the increase for class D is from a pre-test score of about 36 to a post-test score of about 54, which is an increase of 54 – 36 = 18. The increase for class A is about 16. The increase for class B is less than 10. The increase for class C is about 13. The results for class E show a decrease rather than an increase.</td></tr>
<tr><td>18</td><td>The correct answer is 3 because class B showed an increase of less than 10 and class E showed a decrease. Only classes A, C, and D showed increases of more than 10.</td></tr>
<tr><td>19</td><td>The correct answer for part A is 'False' because 71% (32% + 39%) of the Year 3 students at the selected school have scores in Bands 5 and 6 compared to 64% (28% + 36%) at schools with similar students. 71% – 64% = 7%, which is not more than 10%.
The correct answer for part B is 'True' because 36% (2% + 5% + 10% + 19%) of Year 3 students at schools with similar students have scores in Band 4 or below. 36% is greater than one-third ($33\frac{1}{3}\%$).</td></tr>
<tr><td>20</td><td>The correct answer is $212.73 because the duration from 8:45 am to 12:15 pm is 3 and a half hours. Multiplying 3 hours by the hourly rate of 60.78 gives $182.34. Half of $60.78 is $30.39, so $182.34 + $30.39 = $212.73. Alternatively, 60.78 × 3.5 = 212.73.</td></tr>
</table>

<table>
<tr><td>21</td><td>The correct answer is 6 because the ratio 1 adult to 3 students is needed. 22 ÷ 3 = 7 and 1 remainder. This means 7 adults is insufficient and that 8 adults are needed in total.

8 – 2 = 6 so 6 more adults are required.

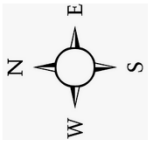
Alternatively, build the ratio as follows:

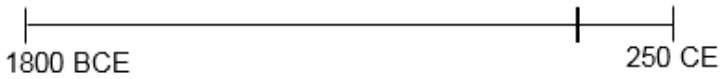
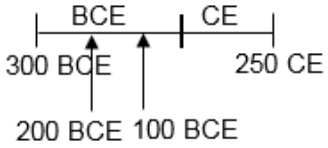
<table><tr><td>Adult</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td>Child</td><td>3</td><td>6</td><td>9</td><td>12</td><td>15</td><td>18</td><td>21</td></tr></table></td></tr>
<tr><td>22</td><td>The correct answer is 167 000 because there are 30 members and 5 000 000 people.
5 000 000 ÷ 30 = 166 667.
166 667 to the nearest thousand is 167 000 because it is closer to 167 000 than 166 000.</td></tr>
<tr><td>23</td><td>The correct answer is $253.35 because 10% of $210 = $210 ÷ 10 = $21, so 5% of $210 = $10.50. The teacher pays $210 – $10.50 = $199.50 for the pack. $17.95 × 3 = $53.85, so the total paid is $199.50 + $53.85 = $253.35.

Alternatively, 1% of $210 = $210 ÷ 100 = $2.10, so 5% = $2.10 × 5 = $10.50, etc.</td></tr>
<tr><td>24</td><td>The correct answer for part A is 'Not possible to determine' because although the median study score for school B was greatest, the median is the middle value and a type of average only. It does not indicate the range of the scores. There will almost certainly be individual students above and below the median. There may be students in school A or school C that achieved higher individual scores than the highest score in school B. It is not possible to determine if the statement is true or false.
The correct answer for part B is 'False' because while school A's percentage of study scores over 40 was two times that of school C, school A's number of students enrolled was less than half the number enrolled at school C. For school A, 20% of 85 is 17 students. For school C, 10% of 212 is about 21 students. 21 is not two times 17.</td></tr>
<tr><td>25</td><td>The correct answer is $120 because there are 8 planks required altogether and $15 × 8 = $120.
Alternatively, one side costs $30 ($15 + $15), so four sides cost $30 × 4 = $120.</td></tr>
<tr><td>26</td><td>The correct answer is B (2 cubic metres) because the depth of the bed is 0.4 m (0.2 × 2) and volume = length × width × height ≈ 2.4 × 2.4 × 0.4 = 2.304 ≈ 2.
More precisely, inner dimension is 2.4 – 0.05 = 2.35 and 2.35 × 2.35 × 0.4 = 2.209 ≈ 2.</td></tr>
<tr><td>27</td><td>The answer for Part A is 'True' because the chance of rain is 10% and therefore the chance of no rain is 90%. 10% is less than 90%.
The answer for Part B is 'False' because the forecast predicted that while the chance of rain is low, from 2 to 5 mm of rain is possible. 3mm lies within the predicted range.</td></tr>
<tr><td>28</td><td>The correct answer is 3 kilograms because there are 25 people in total, each requiring 120 grams. 25 × 120 grams = 3000 grams = 3 kilograms because 1 kg = 1000 g.
Alternatively, 120 grams = 0.12 kg and 25 × 0.12 kg = 3 kg.</td></tr>
<tr><td>29</td><td>The correct answer is 8 because the range is the difference between the highest and lowest scores (i.e. 19 – 11 = 8).</td></tr>
</table>

<table>
<tr><td>30</td><td>The correct answer for part A is 'True' because the National Minimum Standard is indicated by the blue (medium) shading, the second bottom Band for each Year level.
The correct answer for part B is 'True' because Bands 5 and 6 are reported in all four Year levels.
The correct answer for part C is 'False' because from Year 3 to Year 5, two new Bands (Bands 7 and 8) are reported and two previous Bands (Bands 1 and 2) are not reported.</td></tr>
<tr><td>31</td><td>The correct answer is C (aqua) because the table states that 2 blue drops and 1 green drop combine to make aqua. If the number of drops of each of these colours are doubled, they match the proportion identified in the question (4 blue drops and 2 green drops).</td></tr>
<tr><td>32</td><td>The correct answer is 15 because the ratio required is 3 drops of yellow to 1 drop of green, giving 4 drops in total. To get 20 drops, each colour must be multiplied by 5 and for yellow, 3 drops × 5 = 15 drops.
Alternatively,
<table><tr><th>Yellow</th><th></th><th>Green</th><th>Total drops</th></tr><tr><td>3</td><td>:</td><td>1</td><td>4</td></tr><tr><td>6</td><td>:</td><td>2</td><td>8</td></tr><tr><td>9</td><td>:</td><td>3</td><td>12</td></tr><tr><td>12</td><td>:</td><td>4</td><td>16</td></tr><tr><td>15</td><td>:</td><td>5</td><td>20</td></tr></table></td></tr>
<tr><td>33</td><td>The correct answer for part A is 'True' because the total raised from named events is $9000 (600 + 4000 +2400 + 2000), leaving $3000 (12 000 – 9000) raised from other events. One-quarter of 12 000 is 3000 (12000 ÷ 4).
The correct answer for part B is 'False' because 30% of 12 000 = 3600, not 4000.
Alternatively, 10% of 12 000 = 1200, so 30% is 3600, not 4000.
The correct answer for part C is 'True' because the money raised from the Trivia night was 2400 and the lunches earned 600.
600 × 4 = 2400.</td></tr>
<tr><td>34</td><td>The correct answer is C (Drive south-east on Highway 1. At Katherine turn right and stay on Highway 1.) because travelling from Darwin to Katherine the direction is towards the south and also towards the east (hence south-east). Once at Katherine, coming from Darwin, the road to Timber Creek is on the right so a right turn is needed.</td></tr>
<tr><td>35</td><td>The correct answer is B because the total time taken is 7 h 5 min plus 45 min, which equals 7 h 50 min. Adding 7 h 50 min to 8:30 am gives 15 h 80 min, which equals 16 h 20 min. This is equivalent to 4:20 pm.
Alternatively, 8:30 am plus 7 h 5 min driving time equals 15 h 35 min. Adding the 45 min rest stop gives 15 h 80 min, which equals 16 h 20 min. This is also equivalent to 4:20 pm.</td></tr>
</table>

36	The correct answer for Part A is 'True' because the range of the house prices is $490,000 ($790,000 –$300,000) and the range of the unit prices is $80,000 ($340,000 – $260,000). $490,000 is more than five times $80,000 ($80,000 × 5 = $400,000). The correct answer for Part B is 'True' because the median value is the middle value. There are an even number of house prices, so the median is the average of the two middle values. ($340,000 + $360,000) ÷ 2 = $700,000 ÷ 2 = $350,000. There are 11 unit prices, so the sixth value ($290,000) is the middle (median) unit price. $350,000 is $60,000 more than $290,000.
37	The correct answer is 8500 because to reach 500 000 steps in total, Gabrielle will need to walk another 238 000 steps (500 000 – 262 000). She has 4 weeks remaining to walk this number of steps, which is a total of 28 days (4 × 7). 238 000 ÷ 28 = 8500
38	The correct answer is $610 because, at the end of week 6, Shay has walked 366 000 steps. This is an average rate of 61 000 steps (366 000 ÷ 6) each week. If he maintains that rate for 10 weeks, then his total number of steps will be 610 000 (61 000 × 10) steps. Shay is sponsored $1 for every 1000 steps. 610 000 ÷ 1000 = 610, so he will have raised $610.
39	The correct answer is 76 because there are 4 rows of 19 posters as follows: The height is 1.2 metres = 1200 mm because there are 1000 mm in 1 metre. 1200 ÷ 297 ≈ 4.04, so 4 posters can fit into the height. The length is 8 metres = 8000 mm. 8000 ÷ 420 ≈ 19.05, so 19 posters can fit into the length. There are 4 rows of 19 posters and 4 × 19 = 76 posters.
40	The correct answer for part A is True because 2017 is the last year of the period at which the graph for females has risen above the 40% mark. The correct answer for part B is True because in 2012, the graph for females is less than 40% and the graph for males is greater than 30% and so the difference is less than 10%.
41	The correct answer is C (B2 and D2) because the cell C2 contains John's Term 1 test score and D2 contains John's Term 2 test score. Only these values are required to find the total.
42	The correct answers are 7 and $139.65 500 ÷ 72 ≈ 6.9 so 7 containers are required. $19.95 × 7 = $139.65
43	The correct answer is 21 because 6 litres of fuel is required for each 100 kilometres. 350 km ÷ 100 km = 3.5 3.5 × 6 litres = 21 litres Alternatively, 6 litres is required for the first 100 km, then another 6 litres for the next and the third 100 km. Therefore, 18 litres is required for the first 300 km. Since 50 is half of 100, half of 6 (3) litres is required for the final 50 km. The total fuel is 18 + 3 = 21 litres.
44	The correct answer is C (950 kilometres) because for each 6 litres in the fuel tank, the car can travel 100 km. (57 ÷ 6) = 9.5 and 9.5 × 100 km = 950 km.

45	The correct answer to part A is 'True' because the North arrow on the plan indicates the following compass directions:  The correct answer to part B is 'False' because looking from the direction of the back wall the computers are on the right, so looking from the direction of the teacher's desk, which is located at the front of the classroom, the computers must be on the left.
46	The correct answer is D (ACT). For each state or territory, 95% of students are above the level shown by the bottom line of each bar. The bottom line for ACT is in Band 3, meaning that 95% of students are in Band 3 or higher.
47	The correct answer is 7 because, for all states and territories other than the NT, the 80th percentile line was located in Band 6 or above. Because 20% of students are above the 80th percentile, for the 6 states and the ACT, 20% or more of the students were located in Band 6 and above.
48	The correct answer for part A is 'True' because the median is the middle value. Because the 70–79.99 category contains the 32nd–53rd percentile, then the middle (50th) percentile lies within the 70–79.99 category. The correct answer for part B is 'False'. The cumulative percentage does not match the category. To be true, the statement should read '78% of the students achieved an ATAR score greater than or equal to 60' or '88% of the students achieved an ATAR score greater than or equal to 50'. The correct answer for part C is 'Not possible to determine' because the symbol < means 'less than', so the lowest ATAR score in the <40 category is unspecified.
49	The correct answers are 96 and 4. Each cumulative percentage is obtained by progressively adding each percentage to the previous cumulative percentage. The cumulative percentage is 96% because 88% + 8% = 96%. The percentage for the 'Less than 40' category is 4% because 96% + 4% = 100%.
50	The correct answer is 2.5 because the weighted grade values for Units 1 and 2 are 27.0 and 18.0 respectively. The total of these weighted grade values is 27.0 + 18.0 = 45.0, so the GPA is 45.0 ÷ 18 = 2.5. Alternatively, because the weights (points) of each unit are both equal (9), the grade point average will just be the average of the two grade values (3.0 + 2.0) ÷ 2 = 2.5.
51	The correct answer is 3.7 because the grade value of a High Distinction is 4.0 so the weighted grade values for Units 1 and 2 are 18.0 and 48.0 respectively. The total of these weighted grade values is 18.0 + 48.0 = 66.0. The GPA is 66.0 ÷ 18 = 3.66… which rounds to 3.7 because 3.66 is closer to 3.7 than 3.6.

52	The correct answer to part A is 'True' because the Pre-classic period extends from 1800 BCE to 250 CE, as shown in the diagram.  The total length of the period is 1800 years + 250 years = 2050 years, which is more than 2000 years. Alternatively, Early Pre-classic Maya = 900 years, Middle Pre-class Maya = 600 years, Late Pre-classic Maya = 550 years. 900 + 600 + 550 = 2050 The correct answer to part C is 'True' because the period 200 BCE to 100 BCE falls within the Late Pre-classic Maya period, which extended from 300 BCE to 250 CE, as show in the diagram. 
53	The correct answer is 15 because ½ of 60 is 30, so ¼ of 60 is 15. Alternatively, 60 ÷ 4 = 15.
54	The correct answer for part A is 'False' because there are 1000 metres in one kilometre. 75 ÷ 1000 = 0.075, so the swim distance is 0.075 kilometres. The correct answer for part B is 'True' because there are 1000 metres in one kilometre, therefore 3 km = 3000 m. The total length is 75 m + 3000 m + 500 m = 3575 m.
55	The correct answer is 18 seconds because there are 60 seconds in one minute. Therefore, it is 5 seconds to make up to 33 minutes and another 13 seconds to make up to 33 minutes and 13 seconds. 5 seconds + 13 seconds = 18 seconds. Alternatively, 33:13 – 32:55 = 32:73 – 32:55 (trading 1 minute for 60 seconds), and 73 – 55 = 18.
56	The correct answer is 70 because Edith would have turned 71 on 2 August 1932 (1932–1861 = 71) but she died in June, so was only aged 70.
57	The correct answer is 2.7 because 1 km = 1000 m. The distance to Red Cave in km is 800 ÷ 1000 = 0.8. The distance from Red Cave to Broken Waterfall is 3.5 – 0.8 = 2.7. Alternatively, 3.5 km = 3.5 × 1000 m = 3500 m. The distance from Red Cave to Broken Waterfall is 3500 – 800 m = 2700 m = 2700 ÷ 1000 km = 2.7 km.
58	The correct answer is $12 because if 1 kg costs $30 then 0.1 kg costs $3 ($30 ÷ 10); therefore, 0.4 kg costs $3 × 4 = $12. Alternatively, 0.4 of 30 = 0.4 × 30 = 0.4 × 10 × 3 = 4 × 3 = 12.

59	The correct answer to part A is 'False' because 25% of 600 = one-quarter of 600 = 150, so 125% of 600 = 600 + 150 = 750, not 800. In fact, the Year 2 amount is 200 more than the Year 1 amount and 200 is one-third of 600 so the Year 2 amount is 1⅓ of the Year 1 amount or 133⅓%. The correct answer to part B is 'True' because 600 million + 800 million = 1400 million = 1.4 billion, which is greater than 1.2 billion. Alternatively, 1.2 billion is 1200 million, which is less than 1400 million (one billion = 1000 million).
60	The correct answer is 15 because 30 + 30 + 30 = 90 which is 1.5 hours. 1.5 × 10 = 15. Alternatively, 90 × 10 = 900 and 900 ÷ 60 = 15.
61	The correct answer is D (70 + 4 × 8 + 2) because each of the prices has been rounded to the nearest 10 or whole number. $68.95 rounded to the nearest 10 is $70, $3.97 rounded to the nearest whole number is $4 and $1.95 rounded to the nearest whole number is $2.
62	The correct answer for part A is 'True' because 33% is more than four times 7% (7% × 4 = 28). The correct answer for part B is 'True' because the respective totals are 60% (58% + 2%) and 40% (33% + 7%). The ratio 60% to 40% simplifies to 6 to 4 and again to 3 to 2.
63	The correct answer is $600 because 20% of $750 = 2 × 10% of $750 = 2 × $75 = $150, and $750 – $150 = $600. Alternatively, 20% of $750 = one-fifth of $750 = $150, and $750 – $150 = $600. Alternatively, a discount of 20% leaves 80%. 80% of $750 = 8 × 10% of $750 = 8 × $75 = $600.
64	The correct answer is D (2.6 million) because 3,893,834 is approximately 3,900,000 (which is 3.9 million). Two-thirds of 3,000,000 is 2 million and two-thirds of 900,000 is 600,000. Therefore, two-thirds of 3,900,000 is 2,600,000, which is 2.6 million. Alternatively, one-third of 3.9 million = 3.9 million ÷ 3 = 1.3 million. Therefore, two-thirds of 3.9 million = 1.3 million × 2 = 2.6 million.
65	The correct answer is C (6300) because the number of Government schools is twice the number of non-Government schools. This means that the total number of schools (9477) must be divided into three sets of equal size so that two sets can be allocated as Government schools and one set allocated as non-Government schools. 9477 ÷ 3 = 3159. Twice this value is 6318. So, the number of Primary schools is 6318, which is closest to 6300. Alternatively, 9477 is approximately 9000. 9000 ÷ 3 = 3000. Twice this value is 6000.