Practice Test Instructions

1. There are 30 questions in this Practice test (and 30 questions in the final test).
2. There are five alternative answers marked A, B, C, D and E for every question.
3. Every question has only ONE correct answer.
4. Enter your answer selection on the answer sheet provided next to the question number.

Example:

Question 1. 4 + 3 =

| A | 8 |
| B | 6 |
| C | 9 |
| D | 7 |
| E | 5 |

The correct answer is 7 which is printed next to D.

Enter ‘D’ on the Answer Sheet next to ‘Question 1’ as follows:

| Question 1. | D |
| Question 2. |   |

5. Make sure you mark your answer against the corresponding question on the answer sheet provided, especially if you skip between questions.

6. Give yourself 30 minutes to complete the Practice Test (as there are 30 minutes in the final test). We suggest setting up a test environment and timing yourself so it’s similar to the final test.

7. Do not waste time if you do not know the answer. Move on to the next question and if you have time at the end of the test, go back to the questions you skipped.

8. Work as quickly and accurately as you can.

9. We strongly recommend using a silent, battery-operated, non-programmable scientific calculator. To obtain an accurate result, no other resource or device should be used for this Practice test.

10. Formulae are provided at the start of the Practice test (and in the final test booklet).

11. Diagrams are not necessarily drawn to scale.

12. After you finish the test, use the Answer Key provided to check your answers.

13. The score you achieve on the Practice test is an indication only of how you may perform on the final test.

14. The Practice test score cannot be used in place of sitting the final test.

15. The topics listed on the Answer Key can give you an indication of the areas you can improve.
FORMULAE SHEET

The following formulae may be used in your calculations:

**Area and volume**
- Area of rectangle = length $\times$ width
- Area of triangle = $\frac{1}{2}$ base $\times$ height
- Volume of any regular prism = area of base $\times$ height

**Theorem of Pythagoras**
- In any right-angled triangle: $c^2 = a^2 + b^2$

**Temperature conversion formula**
- Degrees Celsius to degrees Fahrenheit: $^\circ F = (^\circ C \times 1.8) + 32$

**Trigonometry**
In any right-angled triangle:

\[
\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}
\]

\[
\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}
\]

\[
\tan \theta = \frac{\text{opposite}}{\text{adjacent}}
\]

**Growth and decay formulae**
- Simple growth or decay: $A = P (1 \pm ni)$
- Compound growth or decay: $A = P (1 + i)^n$

Where:
- $A$ = amount at the end of $n$ years
- $P$ = principal
- $n$ = number of years
- $i$ = interest rate per year, $r \% = \frac{r}{100}$
Question 1. Which list has the numbers in order from greatest to least value?

A. 2.58 2.5 2.08 2.8 2.508
B. 2.8 2.508 2.08 2.5 2.58
C. 2.5 2.58 2.508 2.08 2.8
D. 2.8 2.58 2.508 2.5 2.08
E. 2.8 2.508 2.58 2.5 2.08

Question 2. Christine orders an item online from an American company. The cost is US$80 (plus the postage cost of US$9.90). If the exchange rate for one US dollar is AU$1.40, what will be the total cost of her order in Australian dollars?

A. $125.85
B. $112.00
C. $89.90
D. $64.20
E. $91.30

Question 3. A school bought 200 apples at 40¢ each to sell as toffee apples. They used 2 kg of sugar at 99¢ per kg to make the toffee. If they sell all the toffee apples for $1.50 each, calculate their profit as a percentage of their costs.

A. 38%
B. 67%
C. 138%
D. 266%
E. 300%

Question 4. Normal body cells stop reproducing themselves after 50 to 60 times, i.e. when a person reaches adulthood. After that, new cells are only reproduced to substitute dead cells. Unlike normal cells, cancer cells do not stop reproducing after 50 to 60 times, but continue to double themselves indefinitely: 1→2→4→8→16 etc. The cells of a certain kind of cancer subdivide at a rate of doubling itself on a daily basis. Starting with one cell, how many cells would have formed after 30 days?

A. 536 870 912
B. 1 073 741 824
C. 268 435 456
D. 1 800
E. 600
**Question 5.** The floor of a rectangular room 12 m x 6 m is to be tiled. The tiles to be used are rectangular with dimensions 60 cm x 30 cm. The number of tiles required is:

- A. 200
- B. 300
- C. 360
- D. 400
- E. 720

**Question 6.** If \( a = 5 \) and \( b = 6 \) then \( 3ab = \)

- A. 30
- B. 14
- C. 90
- D. 105
- E. 33

**Question 7.** Dana multiplied a number by 5. Then she multiplied the result by 3. Then she multiplied this result by 2. Her final answer was

- A. twice the original number
- B. 10 times the original number
- C. 16 times the original number
- D. 20 times the original number
- E. 30 times the original number

**Question 8.** If 10 workers plant out a garden in 3 days, 6 workers will complete the same planting task, working at the same rate, in how many days?

- A. 6 days
- B. 1.8 days
- C. 5 days
- D. 7 days
- E. 3 days
Question 9. \( \sqrt{2} \times \sqrt{4} \times \sqrt{8} \) is not equal to
A. \( 8\sqrt{2} \)
B. \( \sqrt{64} \)
C. \( 4\sqrt{4} \)
D. \( 8 \)
E. \( 2\sqrt{16} \)

Question 10. \( (3 \times 10^{10}) \times (2.4 \times 10^{12}) = \)
A. \( 5.4 \times 10^{22} \)
B. \( 7.2 \times 10^{22} \)
C. \( 7.2 \times 10^{2} \)
D. \( 7.2 \times 10^{120} \)
E. \( 5.4 \times 10^{22} \)

Question 11. The number 0.000000617 written in scientific notation and rounded to 2 significant numbers is
A. \( 6.1 \times 10^{-7} \)
B. \( 6.17 \times 10^{9} \)
C. \( 0.62 \times 10^{-6} \)
D. \( 6.2 \times 10^{-7} \)
E. \( 6.17 \times 10^{-9} \)

Question 12. If an athlete is able to sprint 100 metres in 10 seconds, the average speed of the athlete is
A. \( 36 \text{ km/h} \)
B. \( 36 \text{ m/s} \)
C. \( 6 \text{ km/h} \)
D. \( 60 \text{ km/h} \)
E. \( 38 \text{ km/h} \)

Question 13. The distance \( s \) in km of a car from Melbourne as it travels on the M31 to Albury is given by \( s = 60t + 46 \) (\( t \) in hours). If it takes the car 4\( \frac{3}{4} \) hours to reach Albury, how far is Albury from Melbourne?
A. \( 255 \text{ km} \)
B. \( 295 \text{ km} \)
C. \( 300 \text{ km} \)
D. \( 316 \text{ km} \)
E. \( 301 \text{ km} \)
Question 14. The formula that describes the relationship between the variables, \(x\) and \(y\) shown below, is

\[
\begin{array}{c|cccc}
  x & 0 & 1 & 2 & 3 \\
  \hline
  y & 2 & 3 & 6 & 11 \\
\end{array}
\]

A. \( y = x + 2 \)
B. \( y = x^2 + 2 \)
C. \( y = \frac{1}{2} x^2 + 4 \)
D. \( y = 3x + 2 \)
E. \( y = 2x^2 + 2 \)

Question 15. You are flying from Sydney to London and will land 29 hours after take-off. London time is 11 hours behind Sydney time. If you leave Sydney at 9 pm, what time will you land in London?

A. 6 am
B. 10 am
C. 12 pm
D. 6 pm
E. 3 pm

Question 16. For the first four months of the year, the average water consumption of a family is 56.46 kL per month. For the next eight months of the year, their average consumption is 43.78 kL per month. Calculate their average monthly water consumption for that year.

A. 48.01 kL
B. 50.12 kL
C. 49.99 kL
D. 57.61 kL
E. 100.24 kL

Question 17. $500 is to be invested for 3 years. Determine the difference in interest earned when comparing a 10% p.a. compound interest rate to a 10% p.a. simple interest rate over this period.

A. $515.50
B. $165.50
C. $15.50
D. $665.50
E. $150.00
Question 18. The work a student does in class contributes 75% to his final mark. A test contributes the other 25%. The student gets a mark of 52% for his class work. What mark must he get in the test so that his final overall mark is 60%?

A. 68%
B. 80%
C. 96%
D. 81%
E. 84%

Question 19. Dave cycled for 30 minutes at 24 km/h and then continued to walk for 20 minutes. In all he covered 14 km. At what speed did he walk?

A. 6.8 km/h
B. 4 km/h
C. 6 km/h
D. 2.5 km/h
E. 2 km/h

Question 20. A cable, 50 m long from the top of a wind-turbine tower, is 30 m from the foot of the turbine on the same horizontal level. Determine the height of the tower.

A. 36 m
B. 48 m
C. 45 m
D. 40 m
E. 44 m

Question 21. When two fair dice are rolled together, the probability of throwing a double is:

A. \( \frac{1}{36} \)
B. \( \frac{1}{18} \)
C. \( \frac{1}{3} \)
D. \( \frac{1}{6} \)
E. \( \frac{1}{12} \)
**Question 22.** The strawberries in two punnets A and B are weighed (in grams) and the results are shown in the table below.

<table>
<thead>
<tr>
<th>Punnet</th>
<th>Weights of strawberries (in grams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Punnet A</td>
<td>23, 21, 14, 21, 12, 15, 22, 17, 18, 10, 12, 15</td>
</tr>
<tr>
<td>Punnet B</td>
<td>24, 22, 10, 11, 14, 16, 15, 22, 14, 18, 16, 12</td>
</tr>
</tbody>
</table>

Which statement is correct?

A. The number of strawberries in Punnet A is greater than in Punnet B.
B. There are 10 strawberries in Punnet A.
C. The contents of Punnet A weigh less than those in Punnet B.
D. The mean weight of strawberries in Punnet B is 194 grams.
E. The mean weight of strawberries in Punnet A is 16.67 grams.

**Question 23** To answer this question, refer to the data shown in the table in Question 30. What is the ‘range’ of strawberry weights in Punnet B?

A. 12 g
B. 14 g
C. 15 g
D. 18 g
E. 13 g

**Question 24** To answer this question, refer to the data shown in the table in Question 30. What is the ‘median’ weight of strawberries in Punnet A?

A. 18 g
B. 17 g
C. 16 g
D. 15 g
E. 14 g
Question 25 The Eureka Tower in Melbourne is 297 m high. The angle of depression from the top of the tower to the end of its shadow is 30°. How far away from the foot of the tower (directly under its highest point) is the end of its shadow correct to the nearest whole metre?

A. 514 m  
B. 171 m  
C. 594 m  
D. 149 m  
E. 343 m  

Question 26. Rotational symmetry is obtained by rotating a shape so that the object looks the same. Through how many degrees could the regular hexagon below be rotated to maintain rotational symmetry?

A. 90°, 180°  
B. 120°, 200°  
C. 60°, 90°  
D. 180°, 300°  
E. 90°, 120°
**Question 27.** The label of a 600 ml shampoo bottle states there is enough for 80 washes. Yeng washes her hair 20 times and refills the bottle with water. The original bottle contained 80% shampoo ingredients and 20% water. What percentage of water does the diluted bottle contain now?

A. 42%
B. 25%
C. 40%
D. 75%
E. 35%

**Question 28.** This graph is showing the rainfall in mm per day for a week. The average rainfall for the five days is closest to:

![Rainfall Graph]

A. 11 mm
B. 15 mm
C. 30 mm
D. 80 mm
E. 20 mm

**Question 29** A flagpole casts a shadow 27 m long. A metre ruler held vertically at the same time casts a shadow 165 cm long. The height of the pole is closest to:

A. 45 m
B. 22 m
C. 11 m
D. 18 m
E. 16 m
Question 30. The following pie chart represents how four friends allocated the driving time on a weekend trip. The percentage of time each person spent driving was 40%, 30%, 20% and 10%. If the total driving time was 20 hours, determine how many hours Dan was the driver.

A. 6 hours
B. 8 hours
C. 10 hours
D. 12 hours
E. 4 hours

End of Test
### Year 10 General Mathematics Practice Test Answer Key

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<th>Answer</th>
<th>Topic Area</th>
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<td>working with numbers (fractions, decimals, percentages)</td>
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<tr>
<td>Q2</td>
<td>A</td>
<td>working with numbers (computations)</td>
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<td>Q3</td>
<td>D</td>
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<td>Q4</td>
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<tr>
<td>Q19</td>
<td>C</td>
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<td>--------------------------------------------------------</td>
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<tr>
<td>Q24</td>
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<tr>
<td>Q30</td>
<td>A</td>
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