TEST INFORMATION

- This test contains 30 questions and can be administered to individuals, small groups or to a whole class of students.
- Practice questions are included at the start of the test to help students become familiar with the different types of responses that are required in the test. Teachers should work through the practice questions with students prior to starting the test.
- An answer sheet, results translation table and information on interpreting results are included.
- **Time allocation**
  - Introduction and practice questions: 5 – 10 minutes
  - Test time: 40 minutes

TEST ADMINISTRATION

- Make sure that each student has a pencil and an eraser.
- Hand out the test booklets to students, making sure that the front cover is facing them.
- Read through the instructions on the front cover of the test with the students.
- Work through the practice questions with the students, ensuring that the students pay attention to the type of response that is required for each question.
<table>
<thead>
<tr>
<th>Question</th>
<th>Correct Response</th>
<th>Skill Descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>B</td>
<td>find square roots of rational numbers that are perfect squares</td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>identify equivalent fractions</td>
</tr>
<tr>
<td>3</td>
<td>C</td>
<td>perform computations using multiple operations</td>
</tr>
<tr>
<td>4</td>
<td>434</td>
<td>multiply by integers of two or more digits</td>
</tr>
<tr>
<td>5</td>
<td>C</td>
<td>find square roots of rational numbers that are perfect squares</td>
</tr>
<tr>
<td>6</td>
<td>B</td>
<td>divide by multiples and powers of ten</td>
</tr>
<tr>
<td>7</td>
<td>C</td>
<td>perform computations using multiple operations</td>
</tr>
<tr>
<td>8</td>
<td>D</td>
<td>identify factor sets and express numbers as products of powers of primes</td>
</tr>
<tr>
<td>9</td>
<td>52</td>
<td>perform computations involving fractions, proportions, percentages and ratios</td>
</tr>
<tr>
<td>10</td>
<td>80</td>
<td>perform computations using multiple operations</td>
</tr>
<tr>
<td>11</td>
<td>B</td>
<td>identify prime numbers</td>
</tr>
<tr>
<td>12</td>
<td>9</td>
<td>divide integers by two-digit divisors</td>
</tr>
<tr>
<td>13</td>
<td>B</td>
<td>perform computations involving fractions, proportions, percentages and ratios</td>
</tr>
<tr>
<td>14</td>
<td>B</td>
<td>subtract decimal numbers</td>
</tr>
<tr>
<td>15</td>
<td>C</td>
<td>divide integers by two-digit divisors</td>
</tr>
<tr>
<td>16</td>
<td>B</td>
<td>recognise ratio as set:set and subset:set comparisons</td>
</tr>
<tr>
<td>17</td>
<td>A</td>
<td>divide common fractions</td>
</tr>
<tr>
<td>18</td>
<td>125</td>
<td>calculate and order simple powers of whole numbers</td>
</tr>
<tr>
<td>19</td>
<td>C</td>
<td>use knowledge of perfect squares in estimating squares and square roots</td>
</tr>
<tr>
<td>20</td>
<td>B</td>
<td>use place value and order decimals</td>
</tr>
<tr>
<td>21</td>
<td>C</td>
<td>order fractions, decimals, ratios and percentages</td>
</tr>
<tr>
<td>22</td>
<td>D</td>
<td>divide by single-digit divisor</td>
</tr>
<tr>
<td>23</td>
<td>25</td>
<td>perform computations involving fractions, proportions, percentages and ratios</td>
</tr>
<tr>
<td>24</td>
<td>B</td>
<td>perform computations involving fractions, proportions, percentages and ratios</td>
</tr>
<tr>
<td>25</td>
<td>D</td>
<td>represent rational numbers in fractional and decimal forms</td>
</tr>
<tr>
<td>26</td>
<td>A</td>
<td>perform computations with integers</td>
</tr>
<tr>
<td>27</td>
<td>D</td>
<td>describe and complete patterns and sets based on simple criteria</td>
</tr>
<tr>
<td>28</td>
<td>A</td>
<td>identify factor sets and express numbers as products of powers of primes</td>
</tr>
<tr>
<td>29</td>
<td>6.375</td>
<td>recognise equivalence of fractions to decimals, ratios and percentages</td>
</tr>
<tr>
<td>30</td>
<td>A</td>
<td>express natural numbers base 10 in binary form</td>
</tr>
</tbody>
</table>
**PROGRESS TEST**

**VELS 4.5 – 5.0 Mathematics: Number**

### USING THIS TEST:

- This Progress Test will provide only an estimated Victorian Essential Learning Standards (VELS) Progression Point. It is intended to complement and confirm other classroom assessments and teacher judgments, and should not be used in isolation.

- This test is designed to measure outcomes over a limited ability range only.

- Results are limited to the expected VELS range for a given year level.

- It is not possible to give a reliable ability estimate for students with zero or perfect scores. It is recommended that you administer a test at a lower or higher level in these cases.

- Ability estimates for students who achieve close to zero or perfect scores will not be as accurate as those for students with results clearly within the range of the test. You may wish to administer a test at a lower or higher level to confirm results for these students.

- Each Progression Point covers a wide range of learning outcomes. A student’s estimated ability is influenced by a result being at or near the bottom or at or near the top of the Progression Point. For example, an estimated Progression Point will be the same for a student with 3 correct answers and a student with 10 correct answers. However, these two students have demonstrated different ability levels.

- Further information about interpreting results can be found on the VCAA website at: http://www.aimonline.vic.edu/doc/ODI.pdf

- Specific information about the learning outcomes for the Victorian Essential Learning Standards is available on the VELS website at: http://vels.vcaa.vic.edu.au
This test targets outcomes at VELS 4.5 to 5.0. For more information about interpreting results download the Interpreting On Demand Reports document at: http://www.aimonline.vic.edu.au/doc/ODI.pdf

<table>
<thead>
<tr>
<th>Number Correct</th>
<th>Progression Point (Standard Score)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Out of Range</td>
<td>The ability of this student cannot be determined using this test. It is recommended that a lower level test be administered.</td>
</tr>
<tr>
<td>1 – 2</td>
<td>4.25 (Below Range)</td>
<td>The result indicates that this student is performing below the expected range for this test.</td>
</tr>
<tr>
<td>3 – 4</td>
<td>4.5</td>
<td>The result indicates that this student is performing at or just below the low end of the range for this test.</td>
</tr>
<tr>
<td>5 – 8</td>
<td>4.5</td>
<td>The result indicates that this student is performing at the low end of the range for this test.</td>
</tr>
<tr>
<td>9 – 10</td>
<td>4.5</td>
<td>The result indicates that this student is performing at or just above the low end of the range for this test.</td>
</tr>
<tr>
<td>11 – 12</td>
<td>4.75</td>
<td>The result indicates that this student is performing at or just below the middle of the range for this test.</td>
</tr>
<tr>
<td>13 – 17</td>
<td>4.75</td>
<td>The result indicates that this student is performing in the middle of the range for this test.</td>
</tr>
<tr>
<td>18 – 19</td>
<td>4.75</td>
<td>The result indicates that this student is performing at or just above the middle of the range for this test.</td>
</tr>
<tr>
<td>20 – 21</td>
<td>5.0</td>
<td>The result indicates that this student is performing at or just below the high end of the range for this test.</td>
</tr>
<tr>
<td>22 – 25</td>
<td>5.0</td>
<td>The result indicates that this student is performing at the high end of the range for this test.</td>
</tr>
<tr>
<td>26 – 27</td>
<td>5.0</td>
<td>The result indicates that this student is performing at or just above the high end of the range for this test.</td>
</tr>
<tr>
<td>28 – 29</td>
<td>5.25 (Above Range)</td>
<td>The result indicates that this student is performing above the expected range for this test.</td>
</tr>
<tr>
<td>30</td>
<td>Out of Range</td>
<td>The ability of this student cannot be determined using this test. It is recommended that a higher level test be administered.</td>
</tr>
</tbody>
</table>
**STUDENT DETAILS**

<table>
<thead>
<tr>
<th>STUDENT’S NAME</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE</td>
<td></td>
</tr>
<tr>
<td>CLASS</td>
<td></td>
</tr>
</tbody>
</table>

**STUDENT INSTRUCTIONS**

1. Print your name, class and date above.
2. You have 40 minutes to finish the test.
3. You must do your own work.
4. Do not speak to other students during the test.
5. Raise your hand if you need to speak to the teacher.
6. If you make a mistake, rub it out completely and try again.
7. If a question is too hard, do the next one. You can go back to unanswered questions at the end if you have time.
8. If you have finished the test early, spend time checking your answers before you return the book to your teacher.
This is a blank page
Practice Question 1

10 × 4 =

10  20  30  40

Shade one bubble

Practice Question 2

5 × 5 =

15  25  50  55

Practice Question 3

4 ÷ 2 =

Write your answer in the box
1. $\sqrt{121} = \underline{11}$
   - Shade one bubble

2. Which one of the following is true?
   - $\frac{1}{2} = 20\%$
   - $\frac{1}{3} = 0.30\%$
   - $\frac{1}{4} = 25\%$
   - $\frac{1}{6} = 6.6\%$

3. Julia has $150. She spends $\frac{1}{3}$ of this on a new jumper and a further $40 on a new pair of shoes.
   The amount of money she has left is
   - $40$
   - $50$
   - $60$
   - $70$
   - Shade one bubble

4. $31 \times 14 = \underline{434}$
   - Write your answer in the box

5. $\sqrt{\frac{16}{81}} = \underline{\frac{4}{9}}$
   - Shade one bubble
6. \[ 2400 \div 40 = \] 
\[
\begin{array}{c}
6 \\
60 \\
600 \\
6000
\end{array}
\]

7. 50 students are going to a football match. The cost of entry to the match is $7.35 each, and the bus fare is $1.25 each.

How much money will it cost altogether?

\[
\begin{array}{c}
$415 \\
$425 \\
$430 \\
$460
\end{array}
\]

8. Which set contains only factors of 56?

\[
\begin{array}{c}
8, 7, 4, 3 \\
9, 8, 3, 1 \\
9, 6, 3, 2 \\
8, 7, 4, 2
\end{array}
\]

9. 50% of a number is 26.

What is the number? 42

10. \[ 4^2 \times 5 = \] 

Page 2
11. What is the next prime number?

- 31, 37, 41, 43, [ ]

Options:
- 45
- 47
- 49
- 53

12. $675 \div 75 = [ ]$

13. $\frac{4}{5}$ of $40 = [ ]$

Options:
- $30$
- $32$
- $35$
- $36$

14. $0.87 - 0.6 = [ ]$

Options:
- 0.21
- 0.27
- 0.81
- 0.87

15. $3105 \div 25 = [ ]$

Options:
- 124 remainder 1
- 124 remainder 2
- 124 remainder 5
- 124 remainder 15
16. Patrick has five $1 coins and three $2 coins.

The ratio of the number of $1 coins to the number of $2 coins that Patrick has is

○ 3 : 8
○ 5 : 3
○ 5 : 8
○ 5 : 6

17. \( \frac{\frac{3}{10}}{\frac{1}{5}} = \)

\[ \frac{3}{2} \quad \frac{2}{3} \quad \frac{3}{50} \quad \frac{50}{3} \]

○ ○ ○ ○

18. \( 5^3 = \)

Write your answer in the box

19. \( \sqrt{70} \) is between

6 and 7  7 and 8  8 and 9  9 and 10

○ ○ ○ ○

20. Which one of the following numbers has the greatest value?

0.099  0.99  0.789  0.87

○ ○ ○ ○
21 Which list is in order from smallest to largest value?

- $\frac{1}{4}$, 33 $\frac{1}{3}$%, 0.2
- $\frac{2}{5}$, 20%, 0.8
- $\frac{2}{3}$, 75%, 0.9
- $\frac{1}{2}$, 60%, 0.4

22 $2.9$ million is shared equally between 4 lottery winners. How much will each receive?

- $72\,000$
- $72\,500$
- $720\,000$
- $725\,000$

23 A room is decorated with green and yellow balloons. There are 45 balloons in the room. The ratio of green to yellow balloons is 4:5. How many of the balloons are yellow?

24 Sean had read 45 of the 50 books on his bookshelf. What percentage of the books on his shelf had Sean not read?

- 5%
- 10%
- 20%
- 45%
25. $\frac{2}{3}$ written in decimal form is

- 0.2
- 0.3
- 0.4
- 0.6

26. $-7 \times -3 =$

- 21
- 10
- -10
- -21

27. 0.3, 0.6, 0.9, [ ]

What is the next number in this number pattern?

- 0.11
- 0.12
- 1.1
- 1.2

28. Written as a product of prime factors, 60 is equal to

- $2^2 \times 3 \times 5$
- $6 \times 2 \times 5$
- $2 \times 3 \times 5^2$
- $2 \times 3^2 \times 5$
29 Write $\frac{3}{8}$ as a decimal. 

30 The binary number $1011_2$ is equivalent to the base ten number that is equal to:

- $8 + 2 + 1$
- $10 + 11$
- $2 \times 1011$
- $1011 \div 2$