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| Year 7 | | *Whole Numbers* | Non Calculator  Section |
| **Skills and Knowledge Assessed:**   * Identify and describe properties of prime, composite, square and triangular numbers  (ACMNA122) * Investigate index notation and represent whole numbers as products of powers of prime numbers (ACMNA149) * Investigate and use square roots of perfect square numbers (ACMNA150) * Apply the associative, commutative and distributive laws to aid mental and written computation  (ACMNA151) | | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Answer all questions in the spaces provided on this test paper by:  *Writing the answer in the box or lines provided.*  or  *Shading in the bubble for the correct answer from the four choices provided.*  Show any working out on the test paper.Calculators are **not** allowed. | | | |
|  | Write the number 105 207 in words.  ………………………………………………………………………………………………….. | | |
|  | Write the numeral for the number which is two hundred more than one thousand, nine hundred and twenty. | | |
|  | What is the single numeral for the number written in expanded notation below? | | |
|  | What is the expanded notation for the number 120 304? | | |
|  | Circle the prime numbers in the list below.  7, 15, 16, 21, 31, 43, 51 | | |
|  | Dakota drove for 325 km on Monday and 467 km on Tuesday.  How far did she drive altogether on the two days?  142 km 782 km 792 km 802 km | | |
|  | Stacey had 185 photos printed out and gave 79 to her mother and put the rest in her scrapbook.  How many did she put in her scrapbook? | | |
|  | Jade does 153 bench presses each day for 7 days.  How many bench presses did she do altogether? | | |
|  | Reuben has an allowance of 2 208 text messages that he can send over an 8 day period.  He wants to send the same number each day.  How many should he send each day? | | |
|  |  | | |
|  |  | | |
|  |  | | |
|  | Write down all the factors of 80.  ………………………………………………………………………………………………….. | | |
|  | Which is the prime factorisation of 300? | | |
|  | Write the prime factorisation of 84. | | |
|  | Which number is a perfect square and a multiple of 3?  16 25 27 36 | | |
|  | List all of the prime numbers between 25 and 40.  ……………………………………………………………………………….. | | |
|  | What is the value of | | |
|  | Write the following calculation in index notation: | | |
|  | The first three perfect cubes numbers are 1, 8, and 27.  What is the fifth perfect cube? | | |
|  | Between which two whole numbers does the square root of 90  lie?  and | | |
|  | Which of the numbers below is divisible by 3?  157 347 533 654 | | |
|  | Which of the following can be used to determine if a number is divisible by 5?  The first digit of the number is 5.  The last digit of the number is 5.  The last digit of the number is 5 or 0.  The sum of the digits is divisible by 5. | | |
|  | Evaluate | | |
|  | Which is not true? | | |
|  | 15 28 56 225 | | |
|  | Write one of the symbols > , < or = in the box to correctly complete the sentence below. | | |
|  | Which of the following statements is true?  Statement I Statement II    Statement I only is true. Statement II only is true.  Both statements are true. Neither statement is true. | | |
|  | Which is **not** true?  .  . | | |
|  | For any three numbers *a, b* and *c*, which statement is **not** always true?  .  .  .  . | | |
|  | 363 372 1089 2 610 | | |
|  | Find the value of : | | |
|  | Joanne is asked to determine if the following statement is true.  **If *x*, *y* and *z* are three unequal numbers which are greater than zero then:**    She uses the numbers 3, 4 and 5 to test the statement.  Are any of these equations that she obtained, true?        None of them are true. | | |
|  | Find the highest common factor of 48 and 56. | | |
|  | Find the lowest common multiple of 35 and 20. | | |

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| Year 7 | *Whole Numbers* | Calculator Allowed  Longer Answer  Section |
|  | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| ***Write all working and answers in the spaces provided on this test paper.***  ***Marks may not be awarded if working out and/or answers are not clear.***  ***Marks allocated are shown beside each question.***  ***Calculators are allowed.*** | | |

|  | | **Marks** |
| --- | --- | --- |
|  | (a) Complete the factor tree below. | **2** |
|  | (b) Hence write the prime factorisation of 760.  ……………………………………………………………………………………..  …………………………………………………………………………………….. | **1** |
|  | (c) Another number has a prime factorisation of .  What is the number, and what is the highest common factor of this number and 760?  ……………………………………………………………………………………..  …………………………………………………………………………………….. | **2** |
|  | The first five pentagonal numbers are 1, 5, 12, 22 and 35.  The pentagonal numbers can be illustrated by the diagram below. |  |
|  | (a) Add to the diagram above to show the next two pentagonal numbers and write down their values.  ……………………………………………………………………………………..  …………………………………………………………………………………….. | **3** |
|  | (b) The Square numbers are 1, 4, 9, 16, 25, 36, 49 ….. etc.  The Triangular numbers are 1, 3, 6, 10, 15, 21, 28 ….. etc.  A pattern can be shown using the pentagonal, square and triangular numbers.    Complete two more lines of this pattern.  ……………………………………………………………………………………..  …………………………………………………………………………………….. | **2** |
|  | The table below gives some squares and cubes.     |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Number** | **Square** | **Cube** |  | **Number** | **Square** | **Cube** | | 31 | 961 | 29791 |  | 41 | 1681 | 68921 | | 32 | 1024 | 32768 |  | 42 | 1764 | 74088 | | 33 | 1089 | 35937 |  | 43 | 1849 | 79507 | | 34 | 1156 | 39304 |  | 44 | 1936 | 85184 | | 35 | 1225 | 42875 |  | 45 | 2025 | 91125 | | 36 | 1296 | 46656 |  | 46 | 2116 | 97336 | | 37 | 1369 | 50653 |  | 47 | 2209 | 103823 | | 38 | 1444 | 54872 |  | 48 | 2304 | 110592 | | 39 | 1521 | 59319 |  | 49 | 2401 | 117649 | | 40 | 1600 | 64000 |  | 50 | 2500 | 125000 | |  |
|  | (a) What is the value of :  i)  ………………………………………………………………..  ii)  …………………………………………………………….. | **2** |
|  | (b) What is the value of :  i)  ………………………………………………………………..  ii)  ………………………………………………………………….. | **2** |
|  | (c)  ……………………………………………………………………………………..  …………………………………………………………………………………….. | **1** |

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| Year 7 | | *Whole Numbers* | Non Calculator  Section |
| ANSWERS | | | |
| No. | WORKING | | ANSWER |
|  | One hundred and five thousand, two hundred and seven. | | As written at left |
|  | 1920 + 200 = 2120 | | 2120 |
|  |  | | 43 709 |
|  | 120 304 = | | 2nd answer |
|  |  | |  |
|  |  | | 3rd answer |
|  |  | | 106 |
|  |  | | 1 071 |
|  |  | | 276 |
|  |  | | 70 |
|  |  | | 105 900 |
|  |  | | 39 |
|  |  | | As listed at left |
|  |  | | 2nd answer |
|  |  | |  |
|  |  | | 4th answer |
|  | 29, 31 and 37 | | 29, 31 and 37 |
|  |  | | 81 |
|  |  | |  |
|  | 4th is  and 5th is | | 125 |
|  | ` | | 9 and 10 |
|  | The number is divisible by 3if the sum of the digits is divisible by 3.  1+5+7 = 13 No 3+4+7 = 14 No  5+3+3 = 11 No 6+5+4= 15 Yes | | 4th answer |
|  | The last digit is a 5 or 0, is the complete test. | | 3rd answer |
|  |  | | 2 |
|  |  | | 1st answer |
|  |  | | 3rd answer |
|  |  | | < |
|  | Neither statement is true. | | 4th answer |
|  | Both sides of equality are 25 so true. . Both sides of equality are 144 so true.  . | | 3rd answer |
|  | 1st is true as multiplication is associative and commutative  2nd is not true , see counter example using 5, 6 and 7 for *a*, *b* and *c*.    3rd is true as multiplication is distributive over addition.  4th is true as addition is associative and commutative. | | 2nd answer |
|  |  | | 2nd answer |
|  |  | | 5 |
|  |  | | 4th answer |
|  | Factors of 48 : 1, 2, 3, 4, 6, **8**, 12, 16, 24, 48  Factors of 56 : 1, 2, 4, 7, **8**, 14, 28,56 | | 8 |
|  | Multiples of 35 : 35, 70, 105, **140**, 175, 210  Multiples of 20 : 20, 40, 60, 80, 100, 120, **140**, 160, | | 140 |

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| Year 7 | *Whole Numbers* | Calculator Allowed  Longer Answer  Section | |
| ANSWERS | | | |
|  | | | **Marks** |
|  | (a) | | **2** |
|  | (b) | | **1** |
|  | (c) | | **2** |
|  | (a)  The 6th is 51 and the 7th is 70. | | **2 for diagram**  **1 for numbers** |
|  | (b)  The Square numbers are 1, 4, 9, 16, 25, 36, 49 ….. etc.  The Triangular numbers are 1, 3, 6, 10, 15, 21, 28 ….. etc. | | **1 for each line** |
|  | (a) (i)  (ii) | | **1 each** |
|  | (b) i)  ii) | | **1 each** |
|  | (c) | | **1** |