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| Year  7 | | *Number Systems* | Non Calculator  Test |
| **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 provided.***  **or**  ***Shading in the bubble for the correct answer from the four choices provided.***  **Show any working out on the test paper.** | | | |
|  | Write the number 103 520 in words.  ………………………………………………………………………………………………….. | | |
|  | Write the numeral for the number which is five less than twenty four thousand. | | |
|  | What is the single numeral for the number written in expanded notation below. | | |
|  | What is the expanded notation for the number 103 490? | | |
|  | Circle the composite numbers in the list below.  12, 56, 47, 69, 17, 48, 1 | | |
|  | Keith has nine hundred and twenty cattle and two thousand three hundred sheep.  How many more sheep than cattle does he have?  690 1380 2208 6900 | | |
|  | Bella receives 127 569 online votes in a talent contest.  What is this number rounded to the nearest ten thousand? | | |
|  | Which of the numbers below is divisible by 6?  845 866 888 891 | | |
|  | Which of the following can be used to determine if a number is divisible by 9?  The last digit of the number is a 3, 6 or 9.    The sum of the digits of the number is divisible by 3.  The last digit of the number is an odd number.  The sum of the digits of the number is divisible by 9. | | |
|  | Which of the following is not a multiple of 8?  64 78 80 96 | | |
|  | Write down all the factors of 72. | | |
|  | Which is the prime factorisation of 80? | | |
|  | Write the prime factorisation of 45. | | |
|  | List all of the prime numbers between 10 and 30.  ……………………………………………………………………………….. | | |
|  | What is the value of ? | | |
|  | Write the following calculation in index notation: | | |
|  | Which calculation is the same as  ? | | |
|  | The first three triangular numbers are shown.  What is the fifth triangular number? | | |
|  | Between which two whole numbers does the square root of 90 lie?  and | | |
|  | Given that  Which is not true? | | |
|  | 12 27 72 81 | | |
|  | The number represented by the Roman numerals below is :  MMMCMXLVII  3947 3997 4547 4597 | | |
|  | Write 846 using Roman numerals. | | |
|  | 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 true?  . .  . . | | |
|  | For any two numbers *x* and *y*, which statement is always true?  .  .  .  . | | |
|  | 2 3 23 25 | | |
|  | Find the value of : | | |
|  | *a*, *b* and *c* are three unequal numbers.  What can be said about the statement below?    It is true for all values of *a*, *b* and *c*.  It is true only if *a*, *b* and *c* are even numbers.  It is true only if *a*, *b* and *c* are composite numbers.  It is never true, no matter what values are used for *a*, *b* and *c*. | | |
|  | Find the highest common factor of 40 and 48. | | |
|  | Find the lowest common multiple of 12 and 15. | | |

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| Year  7 | | *Number Systems* | | Non Calculator  Longer Answer  Section | |
|  | | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | |
| Write all working and answers in the spaces provided on this test paper. | | | | | |
|  | | | | | **Marks** |
|  | (a) Complete the factor tree below. | | | | **2** |
|  | (b) Hence write the prime factorisation of 1260 using index notation.  ……………………………………………………………………………………..  …………………………………………………………………………………….. | | | | **1** |
|  | (c) Another number has a prime factorisation of .  What is the number, and what is the highest common factor of this number and 1260?  ……………………………………………………………………………………..  …………………………………………………………………………………….. | | | | **2** |
|  | The table below gives some squares and cubes.     |  |  |  | | --- | --- | --- | | **Number** | **Square** | **Cube** | | 11 | 121 | 1331 | | 12 | 144 | 1728 | | 13 | 169 | 2197 | | 14 | 196 | 2744 | | 15 | 225 | 3375 | | 16 | 256 | 4096 | | 17 | 289 | 4913 | | 18 | 324 | 5832 | | 19 | 361 | 6859 | | 20 | 400 | 8000 | | 21 | 441 | 9261 | | 22 | 484 | 10648 | | 23 | 529 | 12167 | | 24 | 576 | 13824 | | 25 | 625 | 15625 | | | | |  |
|  | 1. What is the value of   ……………………………………………………………………………………..  …………………………………………………………………………………….. | | | | **1** |
|  | 1. What is the value of   ……………………………………………………………………………………..  …………………………………………………………………………………….. | | | |  |
|  | What is the value of ?  ……………………………………………………………………………………..  …………………………………………………………………………………….. | | | |  |

*Number Systems*

ANSWERS

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| Non Calculator Section | | | |
|  | One hundred and three thousand, five hundred and twenty. | 17. |  |
|  | 23 995 | 18. | 15 |
|  | 76 089 | 19. | 9 and 10. |
|  |  | 20. |  |
|  | 12, 56, 47, 69, 17, 48, 1 | 21. | 27 |
|  | 1380 | 22. | 3 947 |
|  | 130 000 | 23. | DCCCXLV1 |
|  | 888 | 24 | > |
|  | The sum of the digits is divisible by 9. | 25. | Neither statement is true. |
|  | 78 | 26. |  |
|  | 1, 2, 3, 4, 6, 8, 9, 12, 24, 36, 72 | 27. |  |
|  |  | 28. | 23 |
|  |  | 29. | 6 |
|  | 11, 13, 17, 19, 23, 29 | 30. | It is true for all values of *a*, *b* and *c*. |
|  | 125 | 31. | 8 |
|  |  | 32. | 60 |

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| Non Calculator  Longer Answer Section | | |
|  | (a) | 2 marks  (1 mark for partially completed or if simple errors made) |
|  | (b) | 1 mark |
|  | (c) | 2  1 for value  1 for HCF |
|  |  | 1 |
|  |  | 1 |
|  |  | 1 |