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| Year 7 | | *Whole Numbers* | Non Calculator  Test |
| * 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. Calculators are* ***not*** *allowed.* | | | |
|  | Write the number 45 307 in words.  ………………………………………………………………………………………………….. | | |
|  | Write the numeral for the number which is ten less than three thousand. | | |
|  | What is the single numeral for the number written in expanded notation below? | | |
|  | What is the expanded notation for the number 38 075? | | |
|  | Circle the prime numbers in the list below.  15, 17, 23, 27, 35, 37, 41 | | |
|  | Keith has a hundred and six horses and three hundred and fifty alpacas.  How many more alpacas than horses does he have?  190 199 244 290 | | |
|  | Jade receives 24 567 online votes in a dancing contest.  What is this number rounded to the nearest hundred? | | |
|  | What is the value of | | |
|  |  | | |
|  |  | | |
|  | Write down all the factors of 60. ( you may not need all the boxes) | | |
|  | Which is the prime factorisation of 120? | | |
|  | Write the prime factorisation of 40. | | |
|  | Which number is an even square number?  9 12 25 36 | | |
|  | List all of the prime numbers between 5 and 20.  ……………………………………………………………………………….. | | |
|  | What is the value of ? | | |
|  | Write the following calculation in index notation: | | |
|  | The first three square numbers are 1, 4, and 9.  What is the seventh square number? | | |
|  | Between which two whole numbers does the square root of 50  lie?  and | | |
|  | Which is not true? | | |
|  | 14 45 90 1012 | | |
|  | Which of the numbers below is divisible by 5?  845 866 888 891 | | |
|  | Which of the following can be used to determine if a number is divisible by 3?  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 last digit of the number is a 5 or a 0. | | |
|  | 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 three numbers *a, b* and *c*, which statement is always true?  .  .  .  . | | |
|  | 8 12 16 24 | | |
|  | 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 36 and 54. | | |
|  | Find the lowest common multiple of 12 and 16. | | |

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| Year 7 | *Whole Numbers* | Non Calculator Longer Answer  Section |
|  | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Write all working and answers in the spaces provided on this test paper. | | |

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Marks** | |
|  | The first three triangular numbers are shown.  Draw diagrams and write the values of the next two triangular numbers. | | **2** |
|  | (a) Complete the factor tree below. | | **2** |
|  | (b) Hence write the prime factorisation of 1 400.  ……………………………………………………………………………………..  …………………………………………………………………………………….. | | **1** |
|  | (c) Another number has a prime factorisation of .  What is the number, and what is the highest common factor of this number and 1400?  ……………………………………………………………………………………..  …………………………………………………………………………………….. | | **2** |
|  | The table below gives some squares and cubes.     |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Number** | **Square** | **Cube** |  | **Number** | **Square** | **Cube** | | 11 | 121 | 1331 |  | 21 | 441 | 9261 | | 12 | 144 | 1728 |  | 22 | 484 | 10648 | | 13 | 169 | 2197 |  | 23 | 529 | 12167 | | 14 | 196 | 2744 |  | 24 | 576 | 13824 | | 15 | 225 | 3375 |  | 25 | 625 | 15625 | | 16 | 256 | 4096 |  | 26 | 676 | 17576 | | 17 | 289 | 4913 |  | 27 | 729 | 19683 | | 18 | 324 | 5832 |  | 28 | 784 | 21952 | | 19 | 361 | 6859 |  | 29 | 841 | 24389 | | 20 | 400 | 8000 |  | 30 | 900 | 2700 | | |  |
|  | (a) What is the value of :  i)  ………………………………………………………………..  ii)  …………………………………………………………….. | | **2** |
|  | (b) What is the value of :  i)  ………………………………………………………………..  ii)  ………………………………………………………………….. | | **2** |
|  | (c)  ……………………………………………………………………………………..  …………………………………………………………………………………….. | | **2** |

Whole Numbers

ANSWERS

|  |
| --- |
| Non Calculator Section ( 1 mark each) |

|  |  |
| --- | --- |
| Q no | Answer |
|  | Forty five thousand, three hundred and seven. |
|  | 3000-10 = 2990 |
|  |  |
|  | 38 075= (3rd answer) |
|  |  |
|  |  |
|  | 24 567 = 24 600 (nearest hundred) |
|  |  |
|  |  |
|  |  |
|  | Factors of 60 are 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60. |
|  | (4th Answer) |
|  |  |
|  | 36 is the only even square number (4th Answer) |
|  | 7, 11, 13, 17, 19 |
|  |  |
|  |  |
|  |  |
|  |  |
|  | 2nd Answer |
|  | 2nd Answer |
|  | Only 845 ends in a 5 (or 0) so is the only one divisible by 5. 1st Answer |
|  | A number is divisible by 3 if the sum of the 2nd Answer  digits of the number is divisible by 3. |
|  | LHS =60 RHS = 50 so correct symbol is **>** |
|  | Statement I Statement II    1st Answer |
|  | Only  is true. 3rd Answer |
|  | 3rd Answer |
|  |  |
|  |  |
|  |  |
|  | HCF of 36 and 54.  Factors of 36 1, 2, 3, 4, 6, 9, 12, 18, 36  Factors of 54 1, 2, 3, 6, 9, 18, 27, 54  HCF is **18** |
|  | LCM 12 and 16.  Multiples of 12 12, 24, 36, 48, 60, 72  Multiples of 16 16, 32, 48, 64, 80, 96  LCM is **48** |

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| Longer Answer Section ( 1 mark each) |

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| --- | --- | --- |
| Q no |  | Answer |
|  |  | 1 mark for each |
|  | (a) | 2 marks if complete  1 mark for partially correct answer |
|  | (b) | 1 |
|  | (c)  Compare the prime factors of 1400 and 1050 | 2 marks for correct answer  1 mark for attempt which has an error |
|  | (a) (i)  (ii) | 1 mark each |
|  | (b) (i)  (ii) | 1 mark each |
|  | (c) | 2 for correct answer  1 for reasonable attemp |