Test 2 Revision Topics 5-8

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| Topic 5 | Find ∠ACD.  Give reasons for your answer. | | Find ∠RPQ.  Give reasons for your answer. | | Find ∠BAT.  Give reasons for your answer. | | | | Find ∠DBC.  Give reasons for your answer. |
| Topic 6 | *y* is directly proportional to  Work out the value of *a*.   |  |  |  | | --- | --- | --- | | *x* | 36 | *a* | | *y* | 2 | 5 | | | is directly proportional to  when  Find the value of *y* when | | *y* is directly proportional to When *R* = 4, *y* = 24  Work out the value of *R* when  *y* = 1350 | | | | *D* is directly proportional to the cube of *n*.  Mary says that when *n* is doubled, the value of *D* is multiplied by 4  Mary is wrong. Explain why. |
| Topic 7 | Here are the first five terms of a sequence.  4 11 22 37 56  Find an expression, in terms of *n*, for the *n*th term of this sequence. | | Here are the first four terms of a quadratic sequence.  3          8          15          24  Find an expression, in terms of *n*, for the *n*th term of this sequence. | | Here are the first 5 terms of a quadratic sequence.  1           3            7           13           21  Find an expression, in terms of *n*, for the *n*th term of this sequence. | | | | Here are the first 6 terms of a quadratic sequence.  3        6        11        18        27        38  Find an expression, in terms of *n*, for  the *n*th term of this sequence. |
| Topic 7 | The first term of a geometric series is 120 and the common ratio, *r*, is  Find, to 2 decimal places, the difference between the 5th and 6th term. | The first three terms of a Fibonacci sequence are  *a         b         a + b*  a)  Show that the 6th term of this sequence is 3*a* + 5*b* Given that the 3rd term is 7 and the 6th term is 29,  b)  find the values of *a* and *b*. | | S is a geometric sequence.  a) Given that are the first three terms of S, find the value of .  Show all of your working.  b)  Show that the 5th term of S is | | | | The second and fifth terms of a geometric series are 9 and 1.125 respectively.  For this series find  a) the value of the common ratio  b) the first term | |
| Topic 8 | John puts some red counters and some blue counters into a box.  The ratio of the number of red to blue counters is 1 : 4  Linda takes at random 2 counters from the box.  The probability that she takes 2 red counters is  How many red counters did John put into the box? | | | | | | There are 10 pens in a box.  There are *x* red pens in the box. All the other pens are blue.  Jack takes at random two pens from the box.  Find an expression, in terms of *x*, for the probability that Jack takes one pen of each colour.  Give your answer in its simplest form. | | |
| Topic 8 | A bag contains 10 counters. The counters are blue or red.  A counter is taken out of the bag at random and not replaced.  A second counter is taken out at random.  The probability that at least one of the counters is blue is  How many of the 10 counters are red? | | | | | There are *y* black socks and 5 white socks in a drawer.  Joshua takes at random two socks from the drawer.  The probability that Joshua takes one white and one black sock is  a)  Show that 3*y*2 – 28*y* + 60 = 0  b)  Find the probability that Joshua takes two black socks. | | | |
| Topic 8 | The Venn diagram shows information about a coin collection.  ξ = 120 coins in the collection  T = coins from the 20th century  B = British coins    A coin is chosen at random.  It is British.  Work out the probability that it is from the 20th century. | | | | | In this Venn diagram  ξ = 295 students in the college  H = students who take History  E = students who take English    One-half of the students who take History also take English.  The number who take English is twice the number who take History.  Work out the value of *x* | | | |