02. Algebra

1. What is the value of when ?

Answer:

* now substitute

1. If and , what is the average of and ?

Answer:

1. Vidya and Vandana solved a quadratic equation. In solving it, Vidya made a mistake in the constant term and got the roots as and , while Vandana made a mistake in the co-efficient of only and obtained the roots as and . The correct roots of the equation are

Answer:

* Let the quadratic equation be
* According to Vidya, , so
* According to Vandana, , so
* So, the equation is
* Roots are

1. If , what is the smallest integer value of for which ?

Answer:

* So, we are looking for the smallest integer value of which satisfies the above inequality

1. A jar contains only red, white and blue marbles. The number of red marbles is the number of white ones, and the number of white ones is the number of blue ones. If there are marbles in all, how many of them are blue?

Answer:

* –> –> –>

1. What is the greater of the two numbers whose product is and whose sum exceeds their difference by ?

Answer:

* –> –> –>

1. A shop owner charges per T.V. and per refrigerator. Last week she sold more T.V. than refrigerators. If her total sale for these two items were , what was the number of T.V.s and refrigerators that she sold?

Answer:

* Number of T.V.s sold be
* Number of refrigerators sold
* –>

1. In a bag containing black and white balls, half the number of white ones equals one-third the number of black balls and twice the whole number of balls, exceeds times the number of black balls by four. How many balls does the bag contain?

Answer:

* ,

1. Rs. 38 is divided among , and such that has more than and has more than B. How much did C get?

Answer:

* , ,

1. Find the number such that if , and are added to it, the product of the first and the third result is equal to the square of the second?

Answer:

* Let number be

1. A man is times as old as his son. The sum of the squares of their ages is . Find the age of the man.

Answer:

1. The sum of the reciprocals of two positive consecutive numbers is . Find the smaller number.

Answer:

1. A fraction becomes when is subtracted from the numerator and 2 is added to its denominator, and it becomes when is subtracted from the numerator and from the denominator. What is the fraction?

Answer:

* Substitute options
* Solution:

1. In a class when students sit on each bench, benches are left vacant. If students sit on each bench, students are left standing. Find the number of students in the class.

Answer:

1. A number consists of two digits whose product is . If the numbers are interchanged the new number is more than the original number by , the number is

Answer:

* Let the number be
* 2 equations 2 variables
* , , so, the number is

1. If the roots of the equation are equal, then the value of a can be

Answer:

* ,
* ,

1. Dick travelled four seventh of a journey by train, of the balance by bus and he walked the remaining distance of kms. What is the total distance travelled by Dick?

Answer:

* Total Distance be
* Train =
* Bus
* Walk

1. An instructor scored a student’s test of questions by subtracting times the number of incorrect answers from the correct answers. If the students answered all of the questions and received a score of , how many questions did the student answered correctly?

Answer:

* Let number of correct answers be
* Wrong answers
* Marks scored:

1. If a total number of identical disks can be arranged in stacks of equal height or in stacks of equal height, the least possible value of is

Answer:

* We are looking for the least number which is completely divisible be and

1. On a legislative committee, the number of males is fewer than twice the number of females. If a female replaced one male, there would be an equal number of males and females on the committee. How many members are on the committee?

Answer:

* Males:
* Females:
* 2 equations 2 variables

1. In a certain brick wall, each row of brick above the bottom contains one less brick than the row just below it. If there are rows in all and a total of bricks in the wall, how many bricks does the bottommost row contain?

Answer:

* Let bottom most row (1st row) contain bricks
* 2nd row:
* 3rd row:
* 4th row:
* 5th row:
* Total bricks:

1. A kennel sold puppies of breed and puppies of breed for a total of . If each breed puppy was sold for less than each breed X puppy, how much did each breed X puppy sell for?

Answer:

* 2 equations 2 variables

1. Rs. is made up of rupee, paisa and paisa coins. The number of these coins is in the proportion of . Total number of coins is

Answer:

* Let multiplicative constant be
* Number of 1-rupee coins:
* Total amount from 1-rupee coins:
* Number of 50 paisa coins:
* Total amount from 50 paisa coins:
* Number of 25 paisa coins:
* Total amount from 25 paisa coins:
* Total amount:
* Total number of coins:

1. Kim bought a total of worth of postage stamps in four denominations. If she bought an equal number of -cent and -cent stamps and twice as many -cents stamps as -cents stamps, what is the least number of -cent stamps she could have bought?

Answer:

* Let number of cent stamps be
* Let number of cent stamps be
* Number of cent stamps =
* Number of cent stamps =
* Total amount from cent stamps:
* Total amount from cent stamps:
* Total amount from cent stamps:
* Total amount from cent stamps:
* Total amount:
* Since and can only take non negative integer values, min value of is (for )

1. A certain truck, travelling at mph gets miles per gallon of diesel fuel consumed. Travelling at mph, the truck gets miles per gallon. On a -mile trip, if the truck used a total of gallons of diesel fuel and travelled part of the trip at miles per hour and the rest at mph, how many miles did the tuck travel at mph?

Answer:

* Let truck travel miles at mph
* Distance traveled at mph:
* Fuel consumed at mph:
* Similarly, Fuel consumed at mph:
* Net Fuel consumed: