

*The next set of tough and tricky DS questions. I'll post OA's with detailed explanations after some discussion. Please, post your solutions along with the answers. Good luck!*

1. Jules and Jim both invested certain amount of money in bond M for one year, which pays for 12% simple interest annually. If no other investment were made, then Jules initial investment in bond M was how many dollars more than Jim's investment in bond M.

(1) In one year Jules earned \$24 more than Jim from bond M.

(2) If the interest were 20% then in one year Jules would have earned \$40 more than Jim from bond M.

Solution: [devil-s-dozen-129312.html#p1063846](http://devil-s-dozen-129312.html#p1063846)

2. If  $n$  is a positive integer and  $p$  is a prime number, is  $p$  a factor of  $n!$ ?

(1)  $p$  is a factor of  $(n+2)! - n!$

(2)  $p$  is a factor of  $(n+2)!/n!$

Solution: [devil-s-dozen-129312.html#p1063847](http://devil-s-dozen-129312.html#p1063847)

3. If  $x$  and  $y$  are integers, is  $y$  an even integer?

(1)  $4y^2 + 3x^2 = x^4 + y^4$

(2)  $y = 4 - x^2$

Solution: [devil-s-dozen-129312.html#p1063848](http://devil-s-dozen-129312.html#p1063848)

4. Of the 58 patients of Vertigo Hospital, 45 have arachnophobia. How many of the patients have acrophobia?

(1) The number of patients of Vertigo Hospital who have both arachnophobia and acrophobia is the same as the number of patients who have neither arachnophobia nor acrophobia.

(2) 32 patients of Vertigo Hospital have arachnophobia but not acrophobia.

Solution: [devil-s-dozen-129312.html#p1063863](http://devil-s-dozen-129312.html#p1063863)

5. If at least one astronaut do NOT listen to Bach at Solaris space station, then how many of 35 astronauts at Solaris space station listen to Bach?

(1) Of the astronauts who do NOT listen to Bach 56% are male.

(2) Of the astronauts who listen to Bach 70% are female.

Solution: [devil-s-dozen-129312.html#p1063867](http://devil-s-dozen-129312.html#p1063867)

6. Is the perimeter of triangle with the sides  $a$ ,  $b$  and  $c$  greater than 30?

(1)  $a - b = 15$ .

(2) The area of the triangle is 50.

Solution: [devil-s-dozen-129312.html#p1063871](http://devil-s-dozen-129312.html#p1063871)

7. Set  $A$  consists of  $k$  distinct numbers. If  $n$  numbers are selected from the set one-by-one, where  $n \leq k$ , what is the probability that numbers will be selected in ascending order?

(1) Set  $A$  consists of 12 even consecutive integers.

(2)  $n = 5$ .

Solution: [devil-s-dozen-129312-20.html#p1063874](http://devil-s-dozen-129312-20.html#p1063874)

8. If  $p$  is a positive integer, what is the remainder when  $p^2$  is divided by 12?

(1)  $p$  is greater than 3.

(2)  $p$  is a prime.

Solution: [devil-s-dozen-129312-20.html#p1063884](http://devil-s-dozen-129312-20.html#p1063884)

9. The product of three distinct positive integers is equal to the square of the largest of the three numbers, what is the product of the two smaller numbers?

(1) The average (arithmetic mean) of the three numbers is  $34/3$ .

(2) The largest number of the three distinct numbers is 24.

Solution: [devil-s-dozen-129312-20.html#p1063886](http://devil-s-dozen-129312-20.html#p1063886)

10. There is at least one viper and at least one cobra in Pandora's box. How many cobras are there?

(1) There are total 99 snakes in Pandora's box.

(2) From any two snakes from Pandora's box at least one is a viper.

Solution: [devil-s-dozen-129312-20.html#p1063888](http://devil-s-dozen-129312-20.html#p1063888)

11. Alice has \$15, which is enough to buy 11 muffins and 7 brownies, is \$45 enough to buy 27 muffins and 27 brownies?

(1) \$15 is enough to buy 7 muffins and 11 brownies.

(2) \$15 is enough to buy 10 muffins and 8 brownies.

Solution: [devil-s-dozen-129312-20.html#p1063892](http://devil-s-dozen-129312-20.html#p1063892)

12. If  $x > 0$  and  $xy = z$ , what is the value of  $yz$ ?

(1)  $x^2 * y = 3$ .

(2)  $\sqrt{x * y^2} = 3$ .

Solution: [devil-s-dozen-129312-20.html#p1063894](http://devil-s-dozen-129312-20.html#p1063894)

13. Buster leaves the trailer at noon and walks towards the studio at a constant rate of B miles per hour. 20 minutes later, Charlie leaves the same studio and walks towards the same trailer at a constant rate of C miles per hour along the same route as Buster. Will Buster be closer to the trailer than to the studio when he passes Charlie?

(1) Charlie gets to the trailer in 55 minutes.

(2) Buster gets to the studio at the same time as Charlie gets to the trailer.

Solution: [devil-s-dozen-129312-20.html#p1063897](http://devil-s-dozen-129312-20.html#p1063897)