

I'm posting the next set of medium/hard DS questions. I'll post OA's with detailed explanations after some discussion. Please, post your solutions along with the answers. Good luck!

1. Bonnie can paint a stolen car in x hours, and Clyde can paint the same car in y hours. They start working simultaneously and independently at their respective constant rates at 9:45am. If both x and y are odd integers, is $x=y$?

- (1) $x^2+y^2 < 12$
- (2) Bonnie and Clyde complete the painting of the car at 10:30am

Solution: [the-discreet-charm-of-the-ds-126962-20.html#p1039633](https://www.manhattanreview.com/question-bank/question/the-discreet-charm-of-the-ds-126962-20.html#p1039633)

2. Is $xy < 1/2$?

- (1) $x^2+y^2=1$
- (2) $x^2-y^2=0$

Solution: [the-discreet-charm-of-the-ds-126962-20.html#p1039634](https://www.manhattanreview.com/question-bank/question/the-discreet-charm-of-the-ds-126962-20.html#p1039634)

3. If a , b and c are integers, is abc an even integer?

- (1) b is halfway between a and c
- (2) $a = b - c$

Solution: [the-discreet-charm-of-the-ds-126962-40.html#p1039637](https://www.manhattanreview.com/question-bank/question/the-discreet-charm-of-the-ds-126962-40.html#p1039637)

4. How many numbers of 5 consecutive positive integers is divisible by 4?

- (1) The median of these numbers is odd
- (2) The average (arithmetic mean) of these numbers is a prime number

Solution: [the-discreet-charm-of-the-ds-126962-40.html#p1039645](https://www.manhattanreview.com/question-bank/question/the-discreet-charm-of-the-ds-126962-40.html#p1039645)

5. What is the value of integer x ?

- (1) $2x^2+9 < 9x$
- (2) $|x+10| = 2x+8$

Solution: [the-discreet-charm-of-the-ds-126962-40.html#p1039650](https://www.manhattanreview.com/question-bank/question/the-discreet-charm-of-the-ds-126962-40.html#p1039650)

6. If a and b are integers and $ab=2$, is $a=2$?

- (1) $b+3$ is not a prime number
- (2) $a > b$

Solution: [the-discreet-charm-of-the-ds-126962-40.html#p1039651](https://www.manhattanreview.com/question-bank/question/the-discreet-charm-of-the-ds-126962-40.html#p1039651)

7. A certain fruit stand sold total of 76 oranges to 19 customers. How many of them bought only one orange?

- (1) None of the customers bought more than 4 oranges
- (2) The difference between the number of oranges bought by any two customers is even

Solution: [the-discreet-charm-of-the-ds-126962-40.html#p1039655](https://www.manhattanreview.com/question-bank/question/the-discreet-charm-of-the-ds-126962-40.html#p1039655)

8. If $x=0.abcd$, where a , b , c and d are digits from 0 to 9, inclusive, is $x > 7/9$?

- (1) $a+b > 14$
- (2) $a-c > 6$

Solution: [the-discreet-charm-of-the-ds-126962-40.html#p1039662](https://www.manhattanreview.com/question-bank/question/the-discreet-charm-of-the-ds-126962-40.html#p1039662)

9. If x and y are negative numbers, is $x < y$?

- (1) $3x + 4 < 2y + 3$
- (2) $2x - 3 < 3y - 4$

Solution: [the-discreet-charm-of-the-ds-126962-40.html#p1039665](https://www.manhattanreview.com/question-bank/question/the-discreet-charm-of-the-ds-126962-40.html#p1039665)

10. The function f is defined for all positive integers a and b by the following rule: $f(a,b)=(a+b)/\text{GCF}(a,b)$, where $\text{GCF}(a,b)$ is the greatest common factor of a and b . If $f(10,x)=11$, what is the value of x ?

- (1) x is a square of an integer
- (2) The sum of the distinct prime factors of x is a prime number.

Solution: [the-discreet-charm-of-the-ds-126962-40.html#p1039671](https://www.manhattanreview.com/question-bank/question/the-discreet-charm-of-the-ds-126962-40.html#p1039671)

11. If x and y are integers, is x a positive integer?

- (1) $x^{|y|}$ is a prime number.
- (2) $x^{|y|}$ is non-negative integer.

Solution: [the-discreet-charm-of-the-ds-126962-40.html#p1039678](https://www.manhattanreview.com/question-bank/question/the-discreet-charm-of-the-ds-126962-40.html#p1039678)

12. If $6a=3b=7c$, what is the value of $a+b+c$?

- (1) $ac=6b$
- (2) $5b=8a+4c$

Solution: [the-discreet-charm-of-the-ds-126962-40.html#p1039680](https://www.manhattanreview.com/question-bank/question/the-discreet-charm-of-the-ds-126962-40.html#p1039680)