1. The sum of n consecutive positive integers is 45. What is the value of n?
(1) n is even
(2) n < 9

(1) n=2 --> 22+23=45, n=4 --> n=6 x1+(x1+1)+(x1+2)+(x1+3)+(x1+4)+(x1+5)=45 x1=5. At least two options for n. Not sufficient.
(2) n<9 same thing not sufficient.
(1)+(2) No new info. Not sufficient.

Answer: E.

2. Is a product of three integers XYZ a prime?
(1) X=-Y
(2) Z=1

(1) x=-y --> for xyz to be a prime z must be -p AND x=-y shouldn't be zero. Not sufficient.
(2) z=1 --> Not sufficient.
(1)+(2) x=-y and z=1 --> x and y can be zero, xyz=0 not prime **OR** xyz is negative, so not prime. In either case we know xyz not prime.

Answer: C

3. Multiplication of the two digit numbers wx and cx, where w,x and c are unique non-zero digits, the product is a three digit number. What is w+c-x?
(1) The three digits of the product are all the same and different from w c and x.
(2) x and w+c are odd numbers.

(1) wx+cx=aaa (111, 222, ... 999=37*k) --> As x is the units digit in both numbers, a can be 1,4,6 or 9 (2,3,7 out because x^2 can not end with 2,3, or 7. 5 is out because in that case x also should be 5 and we know that x and a are distinct numbers).
1 is also out because 111=37*3 and we need 2 two digit numbers.
444=37*12 no good we need units digit to be the same.
666=37*18 no good we need units digit to be the same.
999=37*27 is the only possibility all digits are distinct except the unit digits of multiples.
Sufficient
(2) x and w+c are odd numbers.
Number of choices: 13 and 23 or 19 and 29 and w+c-x is the different even number.

Answer: A.

4. Is y – x positive?
(1) y > 0
(2) x = 1 – y

Easy one even if y>0 and x+y=1, we can find the x,y when y-x>0 and y-x<0
Answer: E.

5. If a and b are integers, and a not= b, is |a|b > 0?
(1) |a^b| > 0
(2) |a|^b is a non-zero integer

This is tricky |a|b > 0 to hold true: **a#0** and b>0.

(1) |a^b|>0 only says that a#0, because only way |a^b| not to be positive is when a=0. Not sufficient. NOTE having absolute value of variable |a|, doesn't mean it's positive. It's not negative --> |a|>=0

(2) |a|^b is a **non-zero integer**. What is the difference between (1) and (2)? Well this is the tricky part: (2) says that a#0 and plus to this gives us two possibilities as it states that it's **integer**:
A. -1>a>1 (|a|>1), on this case b can be any positive integer: because if b is negative |a|^b can not be integer.
OR
B. |a|=1 (a=-1 or 1) and b can be any integer, positive or negative.
So (2) also gives us two options for b. Not sufficient.

(1)+(2) nothing new: a#0 and two options for b depending on a. Not sufficient.

Answer: E.

6. If M and N are integers, is (10^M + N)/3 an integer?
(1) N = 5

(2) MN is even

Note: it's not given that M and N are positive.
(1) N=5 --> if M>0 (10^M + N)/3 is an integer ((1+5)/3), if M<0 (10^M + N)/3 is a fraction ((1/10^|M|+5)/3). Not sufficient.
(2) MN is even --> one of them or both positive/negative AND one of them or both even. Not sufficient
(1)+(2) N=5 MN even --> still M can be negative or positive. Not sufficient.

Answer: E.

7. If b, c, and d are constants and x^2 + bx + c = (x + d)^2 for all values of x, what is the value of c?
(1) d = 3
(2) b = 6

Note this part: "for all values of x"
So, it must be true for x=0 --> c=d^2 --> b=2d
(1) d = 3 --> c=9 Sufficient
(2) b = 6 --> b=2d, d=3 --> c=9 Sufficient

Answer: D.

8. If x and y are non-zero integers and |x| + |y| = 32, what is xy?
(1) -4x - 12y = 0
(2) |x| - |y| = 16

(1) x+3y=0 --> x and y have opposite signs --> either 4y=32 y=8 x=-3, xy=-24 OR -4y=32 y=-8 x=3 xy=24. The same answer. Sufficient.
(2) Multiple choices. Not sufficient.

Answer: A.

9. Is the integer n odd
(1) n is divisible by 3
(2) 2n is divisible by twice as many positive integers as n

(1) 3 or 6. Clearly not sufficient.
(2) TIP:
When odd number n is doubled, 2n has twice as many factors as n.
Thats because odd number has only odd factors and when we multiply n by two we remain all these odd factors as divisors and adding exactly the same number of even divisors, which are odd*2.

Sufficient.

Answer: B.

10. The sum of n consecutive positive integers is 45. What is the value of n?
(1) n is odd
(2) n >= 9

Look at the Q 1 we changed even to odd and n<9 to n>=9

(1) not sufficient see Q1.
(2) As we have consecutive positive integers max for n is 9: 1+2+3+...+9=45. (If n>9=10 first term must be zero. and we are given that all terms are positive) So only case n=9. Sufficient.

Answer: B.