Inequality Assignment - 2

Q1. How many positive integer values can x take that satisfy the inequality

(x - 8) (x - 10) (x - 12).....(x - 100) < 0?

A) 25 (B) 30 (c) 35 (d) 40

Q2. How many integer values of x satisfy both of the following inequalities?

a. (x + 2)^2 (x-10)^3 < 0 and

b. -(x + 4)^5 (x - 8)^4 < 0

A. 10

B. 11

C. 12

D. None of the above

Q3. Solve x^2 - |x + 3| + x > 0

A. (-inf, -1] U [rt(3), 3)

B. (-inf, -3] U [rt(3), inf)

C. (-4,-3) U (4, inf)

D. (-8,-3) U [2, inf)

Q4. Find the range of x where

||x - 3| - 4| > 3

Q5. Solve : (x–4)(x+3)/(x+4)(x+5) > 0

Q6. If x > 4 and y > 2, then, which of the following is always true?

a. x > 6 – y

b. x > 2y

c. x - y ≠ 0

d. x - y > 2

Q7. x is an integer such that 16 ≤ x ≤ 81. If -y = [x^2 + (3√x)(2x + 9) + 162] / [x + 9√x + 18], then what is the range of y?

a. -63 ≤ y ≤ -13

b. 39 ≤ y ≤ 52

c. 13 ≤ y ≤ 63

d. 28 ≤ y ≤ 75

Q8. How many integral values of x satisfy the inequality [(2x + 2^2) (4x + 4^2) . . . . . (10x + 10^2)] / [(12^2 - 12x) (14^2 - 14x) . . . . . (20^2 - 20x)] <0

a. 4

b. 5

c. 9

d. None of these

Q9. Find the number of integral solutions for the inequality (| x - 1| - 4) (| x + 2 | - 5) < 0

Q10. If three positive numbers, a, b and c, are such that a < 40, b > 60 and c < 20, then which of the following is definitely false?

a. (a - b + c) < -10

b. (b - 3c) > 20

c. (2c - b) < -20

d. None of the above

Q11. If f(x) = | x + 1| + 2 |x + 2| + 3 |x + 3|, what is the least value of f (x)?

a. 11/3

b. 4

c. 13/3

d. 14/3

Q12. The solution set of the inequality

|x^3 - 6x^2 + 12x - 6| ≥ (x - 2)^3 is

a. x ∈ [2, infinity]

b. x ∈ [-2. 2]

c. (- infinity, infinity)

d. [0, Inifinity)

Q13. If x satisfies the inequality | x - 1| + | x - 2| + |x - 3| ≤ 6, then which of the following options best describes the range of values that x can assume?

a. x ≤ 2 or x ≥ 3

b. x ≤ 1 or x ≥ 4

c. 0 ≤ x ≤ 4

d. x ≤ 0 or x ≥ 4

Q14. How many integral values of x satisfy the equation

x = | 2x - |120 - 3x||?

Q1. B

Q2. B

Q3. B

Q4. (-inf , -4)U(2,4)U(10,inf)

Q5. (-INF,-5)U(-4,-3)U(4,INF)

Q6. A

Q7. A

Q8. D

Q9. 4

Q10. D

Q11. B

Q12. C

Q13. C

Q14. 3