



GS FOUNDATION BATCH FOR CSE 2024

Worksheet - 2

(Relative size of numbers)

Worksheet 2: Relative Size of Numbers

1. Consider the following statements:

- 1) $a + b > a$ for all natural numbers a and b
- 2) $a + b > a$ for all whole numbers a and b
- 3) $a + b > a$ for all non-zero integers a and b

Which of the statements above is/are correct?

- A. 1 only
- B. 1 and 2 only
- C. 2 and 3 only
- D. 3 only

2. Given $x + \frac{1}{x} = 4$ and $y + \frac{1}{y} = 7$ which of the following is true?

- A. $\frac{1}{x + \frac{1}{x}} \geq y + \frac{1}{y}$
- B. $\frac{1}{x + \frac{1}{x}} > \frac{1}{y + \frac{1}{y}}$
- C. $\frac{1}{x + \frac{1}{x}} < \frac{1}{y + \frac{1}{y}}$
- D. $x + \frac{1}{x} \geq \frac{1}{y + \frac{1}{y}}$

3. Consider the following statements:

- 1) As $5 > 3$, $5^n > 3^n$ for all $n > 0$
- 2) As $5 > 3$, $\sqrt{5} > \sqrt{3}$
- 3) $(123.123)^2$, $(-123.123)^2$, $(-0.123)^2$ are all positive

Which of the statements above is/are correct?

- A. 1 and 2 only
- B. 1 and 3 only
- C. 2 and 3 only
- D. 1, 2 and 3

4. Consider the following statements:

- 1) $\frac{m}{m+1} < \frac{n}{n+1}$ if $n > m$ and m, n are natural numbers
- 2) $\frac{56}{57} > \frac{12}{13}$

Which of the statements above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

5. Amongst $\sqrt{2}$, $\sqrt[3]{3}$, $\sqrt[4]{4}$ which number is the highest?

- A. $\sqrt{2}$,
- B. $\sqrt[3]{3}$
- C. $\sqrt[4]{4}$
- D. Two numbers of the three are equal and are combined highest

6. Find the greatest among following:

$$4^{50}, 5^{40}, 6^{30}, 7^{20}$$

- A. 4^{50} ,
- B. 5^{40} ,
- C. 6^{30} ,
- D. 7^{20}

7. Which number amongst 3^{14} , 2^{18} , 4^{13} , 128472^{-3} is the smallest?

- A. 3^{14} ,
- B. 2^{18} ,
- C. 4^{13} ,
- D. 128472^{-3}

8. What is the correct arrangement in ascending order of fractions:

$$\frac{42}{491}, \frac{30}{313}, \frac{35}{367}$$

- A. $\frac{42}{491}, \frac{30}{313}, \frac{35}{367}$
- B. $\frac{42}{491}, \frac{35}{367}, \frac{30}{313}$
- C. $\frac{35}{367}, \frac{30}{313}, \frac{42}{491}$
- D. $\frac{35}{367}, \frac{42}{491}, \frac{30}{313}$

9. Which of the following options has numbers in relational order?

- A. $12 \times 8^6 < 4 \times 9^3$
- B. $7658 \times 10^8 > 0.7658 \times 10^{13}$
- C. $\frac{2345}{2346} < \frac{8976}{8977}$
- D. $\sqrt{78} < -\sqrt{98}$

10. Which amongst the 2^{50} , 3^{40} , 5^{25} , 7^{21} is smallest?

- A. 2^{50} ,
- B. 3^{40} ,
- C. 5^{25} ,
- D. 7^{21}

11. If A is between -4 and 1, and B is between 1 and 3, then $X^2 - Y^2$ is in between which of the following?
- A. 0 to 16
 - B. -16 to 9
 - C. 8 to 15
 - D. -7 to 15