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