

1. Simplify the following expression:

$$\frac{(x^2y^2) \cdot x^3}{x^2y^5}$$

2. Let $a = 2 \cdot 10^8$, $b = 10^5$. Compute

a. $a^2 \cdot b$; b. $\frac{a}{b}$; c. $\frac{a^2}{b^2}$;

3. If $a = 2^{-13} \cdot 3^9$, $b = 2^{11}3^{-7}$ what is the value of ab ? Of a/b ?

4. Evaluate the following expression by the most convenient way:

$$95^2 - 5^2 =$$

5. If, in a right triangle, one leg has length 1 and the hypotenuse has length 2, what is the other leg?

6. Let

A =set of all people who know French

B =set of all people who know German

C =set of all people who know Russian

Describe in words the following sets:

(a) $A \cap B$ (b) $A \cup (B \cap C)$ (c) $(A \cap B) \cup (A \cap C)$

7. Prove that pair of numbers (1,2) ($x=2$, $y=2$) is the solution of the following system of equations

a) $\begin{cases} x + y - 3 = 0, \\ x - y + 1 = 0; \end{cases}$

b) $\begin{cases} 2x + 3y - 8 = 0, \\ 4x - y - 2 = 0; \end{cases}$

8. Draw on a number line solutions of the following inequalities;

a. $|x - 4| \leq 1$

c. $|x + 5| < 2$;

e. $|x| \leq 6$

b. $|x - 4| \geq 1$

c. $|x + 5| \geq 2$;

e. $|x| \geq 6$