

1. Use digits to write the number six hundred fifty-two billion, thirteen million, seventy-six.

652 013 000 076

2. The following number is written in expanded form. Write it in standard form. 90 700 314

$$9 \cdot 10\,000\,000 + 7 \cdot 100\,000 + 3 \cdot 100 + 1 \cdot 10 + 4 \cdot 1$$

3. Rounding.

(a) Round 9006 807 to the nearest hundred. 9006 800

(b) Round 9006 807 to the nearest thousand. 9007 000

4. The sides of a rectangle are 10 cm and 100 cm long.

(a) Find the perimeter of the rectangle. Include units in your answer. $P = 220$ cm

(b) Find the area of the rectangle. Include units in your answer. $A = 1000$ cm²

5. Consider the following numbers: 360, 603, 1250, 9197, 111 000

(a) Use the rule of divisibility by 3 to find all numbers from the list that are divisible by 3.

360, 603, 111 000

(b) Use the rule of divisibility by 5 to find all numbers from the list that are divisible by 5.

360, 1250, 111 000

(c) Use part a) and b) to find all numbers from the list that are divisible by 15.

360, 111 000

6. List all the prime numbers between 10 and 30. 11, 13, 17, 19, 23, 29

7. List all the factors of 72. 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72

8. The following numbers are all primes except for one. Which number listed is NOT a prime?

11, 61, 73, 213, 401

$$213 = 3 \cdot 71$$

9. Find the prime factorization for 1250. $1250 = 2 \cdot 5^4$

10. Use the prime factorization method to find the least common multiple of 60 and 210. 420

11. Perform the following operations. Show all steps.

(a) $\frac{5 + (5^2 - 3^2) + (5^3 - 3^3) - 3}{5^2 + (5 - 3)^2} = 4$

(b) $2^6 - 2(3^2 + 2^3) + 3(2(15 - 2^3) - 2^2) = 60$

(c) $4(3(2(2^2 - 1) + 1) - 1) + 5 = 85$

(d) $\frac{2(3^3 - 4 \cdot 5) - 2^2}{4^2 - (3^2 + 2)} = 2$

12. Let $a = 4$, $b = 3$, and $c = 1$. Evaluate each of the following expressions.

(a) $a + 2b - 3c = 7$

(b) $a^2 + b^2 + c^2 = 26$

(c) $(a + b)^2 = 49$

(d) $a^2 + b^2 + 2ab = 49$

(e) $a^3 - 7b^2 + 5c^4 = 6$