Prealgebra

Problem Set 10

Answers

1. Use digits to write the following number: three hundred three billion, thirty-nine million, seven hundred fifty-two thousand, ninety-eight. 303 039 752 098

2. The following number is written in expanded form. Write it in standard form. 209 831

$$2 \cdot 100\,000 + 9 \cdot 1000 + 8 \cdot 100 + 3 \cdot 10 + 1 \cdot 1$$

3. Rounding.

   (a) Round 203 715 002 to the nearest million. 204 000 000

   (b) Round 203 715 002 to the nearest hundred thousand. 203 700 000

4. Which number is greater, 10 000 001 or 1000 003? 10 000 001

5. The sides of a rectangle sides are 100 ft and 150 ft long.

   (a) Find the perimeter of the rectangle. Include units in your answer. $P = 500$ ft

   (b) Find the area of the rectangle. Include units in your answer. $A = 15\,000$ ft^2

6. Consider the following numbers: 235, 681 111, 260 010, 101 010, 421 422, 100 000.

   (a) Use the rule of divisibility by 2 to find all numbers from the list that are divisible by 2.
   260 010, 101 010, 421 422, 100 000

   (b) Use the rule of divisibility by 3 to find all numbers from the list that are divisible by 3.
   681 111, 260 010, 101 010, 421 422

   (c) Use the rule of divisibility by 5 to find all numbers from the list that are divisible by 5.
   235, 260 010, 101 010, 100 000

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

8. The following numbers are all primes, with one exception. Which number is NOT a prime? 3, 41, 53, 57, 101. 57

9. Find the prime factorization for 120. $120 = 2^3 \cdot 3 \cdot 5$

10. Use the prime factorization method to find the least common multiple of 36 and 90. 180

11. Perform the following divisions. Express your answer by giving the quotient and the remainder. For example, $17 \div 5 = 3$ R 2.

    (a) $2006 \div 17 =$ 118

    (b) $22500 \div 17 =$ 1323 R 9

12. Perform the following operations. Show all steps.

    (a) $\dfrac{2 \cdot 5 + \left(3^2 - 2^3\right) 2^2}{(3+1)(3-1) - 1^4} =$ 2

    (b) $2 \cdot 3^3 - 40 \div \left(2^3 - 3\right) \cdot 2 =$ 38

(c) $\left(2+2^2\cdot 7\right)\div\left(11-2^2-2\right)+\left(3\left(7-3\right)-11\right)=$ 7

(d) $3^3+\dfrac{3\cdot 2^2+2}{2^3-1}-\left(\dfrac{15}{3}\right)^2=$ 4

(e) $2\cdot\left(2^3-1\right)-3+\dfrac{2^4+2^2}{2^3-2^2}=$ 16

(f) $3\cdot\left(3^3-5\left(2^4-3\cdot\left(2^2+1^5\right)\right)\right)=$ 66

13. A, B, and C were all looking for mistakes in the script. A found 17 mistakes, B found 10 more than A, and C found 5 less than B. What was the average number of mistakes found by A, B, and C? 22