Prealgebra **Problem Set 11** Answers

1. Use words to write the number 20 003 001 twenty million, three thousand, one
2. The number 20 600 043 is written in standard form. Write it in expanded form.
   $2 \cdot 10\,000\,000 + 6 \cdot 100\,000 + 4 \cdot 10 + 3 \cdot 1$
3. Rounding.
   (a) Round 20 600 043 to the nearest million. 21 000 000
   (b) Round 20 600 043 to the nearest ten million. 20 000 000
4. The sides of a rectangle are 17 m and 3 m long.
   (a) Find the perimeter of the rectangle. Include units in your answer. $P = 40$ m
   (b) Find the area of the rectangle. Include units in your answer. $A = 51$ m^2
5. Consider the following numbers: 2100, 35 691, 24 001, 555, 29 000, 375
   (a) Use the rule of divisibility by 2 to find all numbers from the list that are divisible by 2.
   2100, 29 000
   (b) Use the rule of divisibility by 3 to find all numbers from the list that are divisible by 3.
   2100, 35 691, 555, 375
   (c) Use the rule of divisibility by 5 to find all numbers from the list that are divisible by 5.
   2100, 555, 29 000, 375
6. List all the factors of 80. 1, 2, 4, 5, 8, 10, 16, 20, 40, 80
7. List the ten smallest prime numbers. 2, 3, 5, 7, 11, 13, 17, 19, 23, 29
8. Find the prime factorization for 1800. $1800 = 2^3 \cdot 3^2 \cdot 5^2$
9. Use the prime factorization method to find the least common multiple of 30 and 75. 150
10. Perform the following divisions. Express your answer by giving the quotient and the remainder. For example, $17 \div 5 = 3$ R 2.
    (a) $182456 \div 21 =$ 8688 R 8
    (b) $132000 \div 23 =$ 5739 R 3
11. Perform the following operations. Show all steps.
    (a) $\dfrac{5^2 - \left(4^2 + 3\,(2)\right) + 6 - 2^2 - 3}{2^3 - 3\,(2)} =$ 1
    (b) $3 \cdot 2^2 - \left(3 \cdot 5 - 2\left(2^4 - 10\right)\right) =$ 9
    (c) $\dfrac{3^4 - 3^3 + 3^2 - 3^1}{2^4 - 2^3 + 2^2 - 2^1} =$ 6
    (d) $120 \div 6 \cdot 2 - \left(6 \cdot 4 - \left(5^2 - 3^2\right)\right) =$ 32

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

(f) $\left(2\left(4^2 - 3\right) - 3\left(3^2 - 7\right)\right) \div 4 \cdot 5 =$ 25

12. A, B, and C worked together for a week. Together they made $ 1200. They split the money to six equal shares. A took three shares, B took two shares, and C took one share. How much did they take each? A took $ 600, B took $ 400, and C took $ 200