Prealgebra

Problem Set 24

Answers

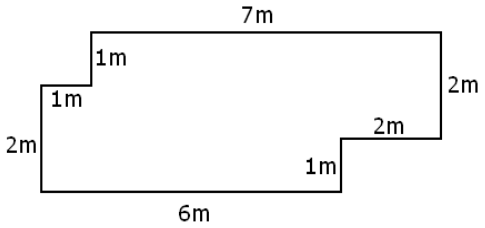
1. Use digits to write the number seventy-five million, fifteen thousand, three hundred ninety-eight. 75 015 398

2. The following number is written in expanded form. Write it in standard form. 302 059 714

$$3 \cdot 100\,000\,000 + 2 \cdot 1\,000\,000 + 5 \cdot 10\,000 + 9 \cdot 1\,000 + 7 \cdot 100 + 1 \cdot 10 + 4 \cdot 1$$

3. Round 27 193 451 to the nearest hundred thousand. 27 200 000

4. Consider the figure shown on the picture below.



   (a) Find the perimeter of the figure. Include units in your answer. $P = 22$ m

   (b) Find the perimeter and area of the rectangle. Include units in your answer. $A = 21$ m^2

5. Consider the numbers 20 040, 6164, 4990, 628, 650.

   (a) Find all numbers from the list that are divisible by 4. 20 040, 6164, 628

   (b) Find all numbers from the list that are divisible by 5. 20 040, 4990, 650

   (c) Find all numbers from the list that are divisible by 20. 20 040

6. List all factors of 370. $1, 2, 5, 10, 37, 74, 185, 370$

7. Which one of the following is NOT a prime number? 79, 93, 111, 129, 131 111

8. Find the least common multiple of 110 and 85.

9. Find the average of -2, 0, 7, -22, 0, 6, and -3. -2

10. We will receive some money. We have two offers to choose from. Plan A is to split \$ 6 000 into five equal shares and we receive two shares. Plan B is to split \$ 10 000 into four equal shares and we get one share. Which plan is better for us, A or B? Plan A is \$ 2 400, Plan B is \$ 2 500

11. Perform the indicated operations. Show all steps.

   (a) $\left(-4 + (-3)^2 \cdot (-1) + (-2)^3 \cdot \left(1 - \left(7 - 3^2\right)\right)\right) =$ -37

   (b) $(3 + (-1))(-5) + 2 - 7 \cdot 3 + (-2)^2 =$ -25

   (c) $\dfrac{12 \div 3 \cdot 2 + (-7 + 9)^3}{1 - 3(2 - 7)} =$ 1

   (d) $\dfrac{5^2 + (-3)(-2)\left(3^2 - 11\right) - (1 - 3)^2}{|14 \div (-7)| - 3} =$ -9

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12. Evaluate each of the following expressions if $x = 2$, $y = -3$, $z = -4$, and $u = 5$.

    (a) $-2(x+u) + 2(y-z)^2 - 3x =$ -18
    (b) $(x-y)^2 - (y-x)^2 + y + 2z =$ -11
    (c) $-3(|x+y| - 2z) + 2(z-y) + x^2 =$ -25

13. Consider the equation $10(x^2-4) + x^3 = -x + 2(x^2+1)$. In each case, determine whether the number given is a solution of the equation or not.

    (a) $x = 0$ $-40 \neq 2$ no
    (b) $x = 3$ $77 \neq 17$ no
    (c) $x = -3$ $23 = 23$ yes
    (d) $x = -7$ $107 = 107$ yes
    (e) $x = -2$ $-8 \neq 12$ no
    (f) $x = 2$ $8 = 8$ yes

14. Solve each of the following equations. Make sure to check your solution.

    (a) $2b = -6$ -3
    (b) $y - 4 = -1$ 3
    (c) $\dfrac{k}{-2} = -12$ 24
    (d) $m + 7 = 2$ -5