2-1 Writing Equations

Translate each sentence into an equation.
1. Three times $r$ less than 15 equals 6.
   \[
   \text{ANSWER:} \quad 15 - 3r = 6
   \]

2. The sum of $q$ and four times $t$ is equal to 29.
   \[
   \text{ANSWER:} \quad q + 4t = 29
   \]

3. A number $n$ squared plus 12 is the same as the quotient of $p$ and 4.
   \[
   \text{ANSWER:} \quad n^2 + 12 = p \div 4
   \]

4. Half of $j$ minus 5 is the sum of $k$ and 13.
   \[
   \text{ANSWER:} \quad \frac{1}{2}j - 5 = k + 13
   \]

5. The sum of 8 and three times $k$ equals the difference of 5 times $k$ and 3.
   \[
   \text{ANSWER:} \quad 8 + 3k = 5k - 3
   \]

6. Three fourths of $w$ plus 5 is one half of $w$ increased by nine.
   \[
   \text{ANSWER:} \quad \frac{3}{4}w + 5 = \frac{1}{2}w + 9
   \]

7. The quotient of 25 and $t$ plus 6 is the same as twice $t$ plus 1.
   \[
   \text{ANSWER:} \quad \frac{25}{t} + 6 = 2t + 1
   \]

8. Thirty-two divided by $y$ is equal to the product of three and $y$ minus four.
   \[
   \text{ANSWER:} \quad \frac{32}{y} = 3y - 4
   \]

9. **FINANCIAL LITERACY** Samuel has $1900 in the bank. He wishes to increase his account to a total of $2500 by depositing $30 per week from his paycheck. Write and solve an equation to find how many weeks he needs to reach his goal.
   \[
   \text{ANSWER:} \quad 1900 + 30w = 2500; \ 20 \text{ weeks}
   \]
2-1 Writing Equations

10. **CCSS MODELING** Miguel is earning extra money by painting houses. He charges a $200 fee plus $12 per can of paint needed to complete the job. Write and use an equation to find how many cans of paint he needs for a $260 job.

   **ANSWER:**
   
   \[12c + 200 = 260; \text{5 cans of paint}\]

   **Translate each sentence into a formula.**

11. The perimeter of a regular pentagon is 5 times the length of each side.

   **ANSWER:**
   
   \[P = 5s\]

12. The area of a circle is the product of \(\pi\) and the radius \(r\) squared.

   **ANSWER:**
   
   \[A = \pi r^2\]

13. Four times \(\pi\) times the radius squared is the surface area of a sphere.

   **ANSWER:**
   
   \[4\pi r^2 = S\]

14. One third the product of the length of the side squared and the height is the volume of a pyramid with a square base.

   **ANSWER:**
   
   \[\frac{1}{3} s^2 h = V\]