

# Translating Words into Expressions

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_\_ / 24

## Q Quick Review

A **variable** is a letter that stands for an unknown number. An **algebraic expression** mixes numbers, variables, and operations — but no equals sign. To translate words, watch for key phrases: **sum** and **more than** mean add, **difference** and **less than** mean subtract, **product** and **times** mean multiply, and **quotient** means divide. Be careful with order: “5 less than  $n$ ” is  $n - 5$ , not  $5 - n$ . Reading the phrase slowly and underlining the operation words makes the translation much easier.

◇ **Example:** Write an expression for “7 more than twice a number  $n$ .”  
 ⇒ Let’s break the phrase into pieces. “Twice a number  $n$ ” means we multiply  $n$  by 2, giving  $2n$ . Then “7 more than” that means we add 7 to it. So we get  $2n + 7$ . A quick check: if  $n = 10$ , twice that is 20, and 7 more is 27 — and  $2(10) + 7 = 27$  matches perfectly.

**Answer:**  $2n + 7$

## PRACTICE

Write an algebraic expression for each phrase.

- |                                |       |  |       |
|--------------------------------|-------|--|-------|
| 1. a number $x$ plus 9         | _____ | 11. the difference of $r$ and 7          | _____ |
| 2. a number $y$ minus 4        | _____ | 12. 3 times the sum of $x$ and 2         | _____ |
| 3. the sum of $n$ and 12       | _____ | 13. half of a number $h$                 | _____ |
| 4. 6 times a number $k$        | _____ | 14. 4 more than the product of 5 and $n$ | _____ |
| 5. the product of 8 and $m$    | _____ | 15. a number $z$ increased by 15         | _____ |
| 6. a number $p$ divided by 3   | _____ | 16. a number $c$ decreased by 8          | _____ |
| 7. 5 less than a number $w$    | _____ | 17. the sum of $2n$ and 6                | _____ |
| 8. 10 more than a number $t$   | _____ | 18. 7 less than 3 times a number $m$     | _____ |
| 9. twice a number $b$          | _____ | 19. the quotient of a number $v$ and 5   | _____ |
| 10. the quotient of 24 and $d$ | _____ | 20. 9 times the difference of $x$ and 1  | _____ |

## ◆ Word Problems

21. Jake has  $n$  trading cards. His sister has 6 more than he does. Write an expression for how many cards his sister has.  
 \_\_\_\_\_
22. A bag of apples costs  $\$a$ . Write an expression for the cost of 4 bags of apples. \_\_\_\_\_
23. A pizza is cut into equal slices and shared by  $p$  people. If there are 12 slices, write an expression for how many slices each person gets. \_\_\_\_\_
24. A taxi charges a  $\$3$  flat fee plus  $\$2$  for each mile  $m$ . Write an expression for the total cost of a ride. \_\_\_\_\_



## Answer Keys

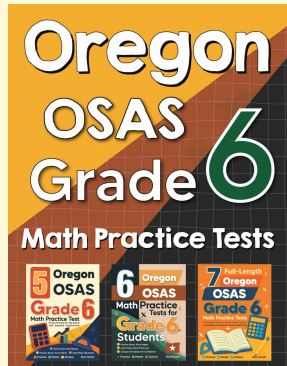
- |   |   |
|---|---|
| <p>1. <math>x + 9</math></p> <p>2. <math>y - 4</math></p> <p>3. <math>n + 12</math></p> <p>4. <math>6k</math></p> <p>5. <math>8m</math></p> <p>6. <math>\frac{p}{3}</math></p> <p>7. <math>w - 5</math></p> <p>8. <math>t + 10</math></p> <p>9. <math>2b</math></p> <p>10. <math>\frac{24}{d}</math></p> <p>11. <math>r - 7</math></p> <p>12. <math>3(x + 2)</math></p> | <p>13. <math>\frac{h}{2}</math></p> <p>14. <math>5n + 4</math></p> <p>15. <math>z + 15</math></p> <p>16. <math>c - 8</math></p> <p>17. <math>2n + 6</math></p> <p>18. <math>3m - 7</math></p> <p>19. <math>\frac{v}{5}</math></p> <p>20. <math>9(x - 1)</math></p> <p>21. <math>n + 6</math></p> <p>22. <math>4a</math></p> <p>23. <math>\frac{12}{p}</math></p> <p>24. <math>2m + 3</math></p> |
|---|---|

### Step-by-Step Explanations

- |   |  |
|---|--|
| <p>1. "Plus" means add, so we write <math>x + 9</math>.</p> <p>2. "Minus" means subtract: <math>y - 4</math>.</p> <p>3. "Sum" means addition, so <math>n + 12</math>.</p> <p>4. "Times" means multiply: <math>6 \times k</math>, written <math>6k</math>.</p> <p>5. "Product" means multiply, so <math>8m</math>.</p> <p>6. "Divided by" means division: <math>\frac{p}{3}</math>.</p> <p>7. "5 less than <math>w</math>" starts with <math>w</math> and takes 5 away: <math>w - 5</math>.</p> <p>8. "10 more than <math>t</math>" means add 10 to <math>t</math>: <math>t + 10</math>.</p> <p>9. "Twice" means two times, so <math>2b</math>.</p> <p>10. "Quotient" means divide: <math>24 \div d = \frac{24}{d}</math>.</p> <p>11. "Difference" means subtract, in order: <math>r - 7</math>.</p> <p>12. The sum <math>x + 2</math> goes in parentheses, then multiply by 3: <math>3(x + 2)</math>.</p> <p>13. "Half of" means divide by 2: <math>\frac{h}{2}</math>.</p> | <p>14. The product <math>5n</math> first, then 4 more: <math>5n + 4</math>.</p> <p>15. "Increased by" means add: <math>z + 15</math>.</p> <p>16. "Decreased by" means subtract: <math>c - 8</math>.</p> <p>17. Add <math>2n</math> and 6 together: <math>2n + 6</math>.</p> <p>18. The product <math>3m</math> first, then take 7 away: <math>3m - 7</math>.</p> <p>19. "Quotient of <math>v</math> and 5" means <math>v</math> divided by 5: <math>\frac{v}{5}</math>.</p> <p>20. The difference <math>x - 1</math> goes in parentheses, then times 9: <math>9(x - 1)</math>.</p> <p>21. "6 more than" Jake's amount means add 6 to <math>n</math>, so his sister has <math>n + 6</math> cards.</p> <p>22. Four bags at <math>\\$a</math> each means 4 times <math>a</math>, written <math>4a</math> dollars.</p> <p>23. Sharing 12 slices equally among <math>p</math> people means divide: each person gets <math>\frac{12}{p}</math> slices.</p> <p>24. The miles cost <math>2m</math> dollars, and the flat fee adds 3 more, so the total is <math>2m + 3</math> dollars.</p> |
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