

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.

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|--------------------------------|-------|--|-------|
| 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

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

Step-by-Step Explanations

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