Translating Words into Expressions

Translating words into expressions: Mistakes and missing information

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QUICK REVIEW

Use a variable for the unknown. Three times the sum of n and 4 is $3(n+4)$, while 4 more than three times n is $3n+4$. At $n=2$, the values are 18 and 10, so grouping matters. 5 less than n is $n-5$, not $5-n$.

Worked example

Write three times the sum of n and 4, then evaluate at $n=2$.

1. Write the whole sum $n+4$, then multiply it by 3: $3(n+4)$.
2. Substitute $n=2$. First add: $2+4=6$.
3. Then multiply: $3\times 6=18$.
Answer: $3(n+4)$; at $n=2$, 18.

Practice Problems

Show your thinking.

1. Correct $3n+7$ for three times the sum of n and 7. Check at $n=2$.

2. A student reverses 4 less than $5n$. Write the correct expression; use $n=3$.

3. A model has 18 objects with $2n$ removed. Recover the expression; check at $n=4$.

4. Correct $n+6/3$ for the sum of n and 6 divided by 3. Use $n=9$.

5. Recover words and an expression for four equal groups, each containing $n-2$. Evaluate at $n=5$.

6. Explain why 9 more than twice n is not $2(n+9)$. Give the right expression at $n=6$.

7. A student writes $2n-11$ for twice n subtracted from 11. Repair and use $n=3$.

8. An equal share is the sum of n and 10 divided among 5 people. Recover the expression and use $n=15$.

Answer Key

1. $3(n+7)$; at $n = 2, 27$.
2. $5n - 4$; at $n = 3, 11$.
3. $18 - 2n$; at $n = 4, 10$.
4. $\frac{n+6}{3}$; at $n = 9, 5$.
5. $4(n-2)$; at $n = 5, 12$.
6. $2n + 9$; at $n = 6, 21$.
7. $11 - 2n$; at $n = 3, 5$.
8. $\frac{n+10}{5}$; at $n = 15, 5$.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Write the whole sum $n + 7$, then multiply it by 3: $3(n + 7)$.
2. Substitute $n = 2$. First add: $2 + 7 = 9$.
3. Then multiply: $3 \times 9 = 27$.

Problem 2

1. Write the product $5n$. Subtract 4 from it: $5n - 4$.
2. Substitute $n = 3$. $5 \times 3 = 15$.
3. Subtract 4: $15 - 4 = 11$.

Problem 3

1. The amount removed is $2n$. Subtract it from 18: $18 - 2n$.
2. Substitute $n = 4$. The amount removed is $2 \times 4 = 8$.
3. Remaining: $18 - 8 = 10$.

Problem 4

1. Group the sum $n + 6$ first. Divide the whole group by 3: $\frac{n+6}{3}$.
2. Substitute $n = 9$. The numerator is $9 + 6 = 15$.
3. Divide by 3: $15/3 = 5$.

Problem 5

1. Write the difference $n - 2$ for one group, then multiply by 4: $4(n - 2)$.
2. Substitute $n = 5$. First subtract: $5 - 2 = 3$.
3. Multiply: $4 \times 3 = 12$.

Problem 6

1. Write the product $2n$. Add 9 to that product: $2n + 9$.
2. Substitute $n = 6$. First multiply: $2 \times 6 = 12$.
3. Then add: $12 + 9 = 21$.

Problem 7

1. The amount removed is $2n$. Subtract it from 11: $11 - 2n$.
2. Substitute $n = 3$. The amount removed is $2 \times 3 = 6$.
3. Remaining: $11 - 6 = 5$.

Problem 8

1. Group the sum $n + 10$ first. Divide the whole group by 5: $\frac{n+10}{5}$.
2. Substitute $n = 15$. The numerator is $15 + 10 = 25$.
3. Divide by 5: $25/5 = 5$.

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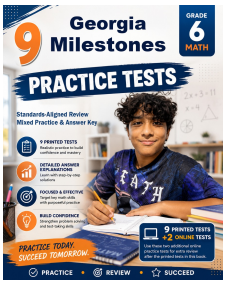

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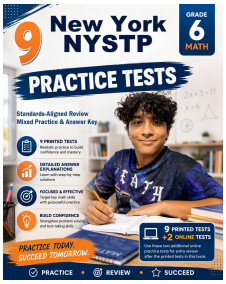

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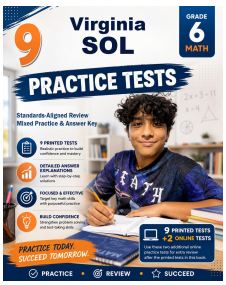

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