



Translating Expressions & Equations

KEY IDEA

Words map onto operations. *Sum, more than, increased by* mean addition. *Difference, less than, decreased by* mean subtraction. *Product, times, of* mean multiplication. *Quotient, divided by, per* mean division. *Is, equals* mean $=$. *At least* means $\geq$, *at most* means $\leq$, *more than* means $>$.

How to do it

1. Name the unknown with a variable and write down what it represents.
2. Find the operation words and the comparison word.
3. Watch the order with *less than*: '5 less than a number' is $x - 5$, not $5 - x$.
4. If the sentence contains *is*, *at least*, or *at most*, you are writing an equation or inequality, not just an expression.

Worked examples

Example 1. Write an algebraic expression or equation:

4 more than a number is 19

$$x + 4 = 19$$

Example 2. Write an algebraic expression or equation:

12 times the sum of a number and 2

$$12(x + 2)$$

Example 3. Write an algebraic expression or equation:

a number increased by 12 is at most 6

$$x + 12 \leq 6$$

Example 4. Write an algebraic expression or equation:

7 more than twice a number

$$2x + 7$$



Translating Expressions & Equations

Directions: Translate each verbal phrase. Let x represent the unknown number.

1. Write an algebraic expression or equation:

9 more than twice a number

2. Write an algebraic expression or equation:

6 more than a number is 21

3. Write an algebraic expression or equation:

a number increased by 5 is at most 19

4. Write an algebraic expression or equation:

7 less than a number

5. Write an algebraic expression or equation:

the quotient of a number and 7, increased by 12

6. Write an algebraic expression or equation:

the sum of a number and 6

7. Write an algebraic expression or equation:

the quotient of a number and 4, increased by 10

8. Write an algebraic expression or equation:

the product of 6 and a number

9. Write an algebraic expression or equation:

9 more than a number is 34

10. Write an algebraic expression or equation:

12 times the sum of a number and 5

11. Write an algebraic expression or equation:

5 times the sum of a number and 5

12. Write an algebraic expression or equation:

the product of 9 and a number equals 34

13. Write an algebraic expression or equation:

9 less than twice a number is 39

14. Write an algebraic expression or equation:

a number decreased by 11 is at least 25

