

Writing Algebraic Expressions Worksheet

An **algebraic expression** is a mathematical phrase made up of **numbers, variables, and operations**. Expressions **do not** contain an equal sign (=).

Common Words and Their Operations:

Words	Operation
Sum, increased by, more than, plus.....	Addition (+)
Difference, minus, decreased by, less than..	Subtraction (-)
Product, times, multiplied by, of.....	Multiplication (×)
Quotient, divided by, per.....	Division (÷)

Important Vocabulary

- **Variable:** A letter that represents an unknown number (usually x, y, or n).
- **Coefficient:** The number multiplied by a variable.
- **Constant:** A number by itself.

Example 1. Write an expression for: "The sum of a number and 8."

Step 1. Let the unknown number be **x**.

Step 2. The phrase "**sum of**" means **add**.

Expression: **$x + 8$**

Example 2 . Write an expression for: "Five less than a number."

Step 1. Let the number be **x**.

Step 2. The phrase "**less than**" means subtract **from** the number.

Expression: **$x - 5$**

Example 3. Write an expression for: "Three times a number increased by 7."

Step 1. Let the number be **x**.

Step 2. "Three times a number" **$3x$**

Step 3. "Increased by 7"

Expression: **$3x + 7$**

Part A – Write an Algebraic Expression - Use **x for the unknown number.**

1. The sum of a number and 9

2. Seven more than a number

3. Four times a number

4. A number divided by 6

a) $x + 6$ b) $\frac{x}{6}$ c) $6 - x$

5. Eight less than a number

6. The product of 12 and a number

7. A number decreased by 15

8. The quotient of a number and 4

a) $\frac{x}{4}$ b) $4 + x$ c) $x - 4$

9. Ten added to a number

10. Twice a number

Part B – Translate into Algebraic Expressions

11. Five more than twice a number

12. Three less than four times a number

13. The product of 8 & a number increased by 2

14. Nine divided by a number

a) $9 - x$ b) $\frac{9}{x}$ c) $9x$

15. One-half of a number

a) $\frac{x}{2}$ b) $2x$ c) $2 + x$

16. Seven times the sum of a number and 5

17. The difference between a number and 11

18. Four more than the quotient of a number and 8

a) $\frac{x}{8} + 4$ b) $4 + x$ c) $x - 4$

19. The product of 6 and the difference of a number and 3

20. The quotient of the sum of a number and 10 and 5

a) $\frac{x+10}{5}$ b) $10 - x$ c) $10x$

Part C – Choose the Correct Expression

Circle the correct expression.

21. Five less than a number

A. $5 - x$

B. $x - 5$

C. $5 + x$

22. Three times a number plus 2

A. $3(x + 2)$

B. $3x + 2$

C. $2x + 3$

23. The quotient of a number and 7

A. $\frac{7}{x}$

B. $\frac{x}{7}$

C. $7x$

24. The difference between twice a number and 4

A. $2x - 4$

B. $4 - 2x$

C. $2(x - 4)$

25. Eight more than half a number

A. $\frac{x+8}{2}$

B. $\frac{x}{2} + 8$

C. $8x + 2$

Part D – Word Problems

Write an algebraic expression for each situation.

26. Sarah has **x** dollars. She earns **15** more dollars.

Expression: a) $x + 15$ b) $15x$ c) $15 - x$

27. A rectangle has a length of **x** feet and a width of **8** feet. Write an expression for the perimeter.

Expression: a) $2x + 8$ b) $2(x + 8)$ c) $\frac{x}{5} + 2$

28. A movie ticket costs **\$12**. A snack costs **x** dollars.

Expression: a) $12x$ b) $12 + x$ c) $12 - x$

29. There are **x** students. They are divided equally into **5** groups.

Expression: a) $\frac{x}{5}$ b) $5 - x$ c) $5x$

30. A plumber charges **\$60** plus **\$25** for each hour worked. Let **h** represent the number of hours.

Expression: a) $60 - h$ b) $60 + 25h$ c) $60h$
