

Simplifying Variable Expressions

Simplify variable expressions by performing the operations on the coefficients of the same variables. The coefficient is the number in front of the variable.

Simplify each expression.

$$\begin{array}{lll}
 6x + x & \rightarrow (6 + 1)x & \rightarrow 7x \\
 14y - 2y & \rightarrow (14 - 2)y & \rightarrow 12y \\
 5y + 8x - 2y + 3x & \rightarrow (5 - 2)y + (8 + 3)x & \rightarrow 3y + 11x \\
 7x \cdot 2 & \rightarrow (7 \cdot 2)x & \rightarrow 14x \\
 12y \div 6 & \rightarrow \frac{12}{6}y & \rightarrow 2y
 \end{array}$$

Simplify each variable expression.

1. $4x + 3x$

2. $3r + 5r$

3. $12y - y$

4. $9 \cdot 2e$

5. $56a \div 8$

6. $x + x + 3x$

7. $10s + 5s + 3s$

8. $18y - y - 2z$

9. $24t + 6t - 2x$

10. $5x - 3x + y$

11. $3 \cdot 3x$

12. $27p \div 3$

13. $110t - 20t$

14. $144x + 12x$

15. $35c \cdot 5$

16. $9 \cdot 8 \cdot y$

17. $15z \cdot 3 \cdot 2$

18. $81b \div 9 \div 3$

19. $48t \cdot 2 + 2t$

20. $8x \div 4 - y$

21. $3 \cdot 2x + 2x$

22. $19a - 16a \div 2$

23. $12y - y + 18z$

24. $24d + 6d - 2x$

Solve.

25. There are 9 more children than adults on the bus. Write an expression for the total number of the people on the bus.

Let x = the number of adults. Then, let $x + 9$ = the number of children.

The expression is _____.

The simplified expression is _____.

Directions: Choose the one best answer to each item. Circle the number of the correct answer.

26. All suits are on sale for x dollars. All shirts are on sale for y dollars. Pam bought 2 suits for herself and 2 for a friend. She also bought 1 shirt for herself and 1 for a friend. Which simplified expression shows how much change she would receive from \$160.00?
- (1) $4x + 2y - 160$
 - (2) $160 - 2x + 2x + y + y$
 - (3) $160 - 4x + 2y$
 - (4) $160 - 4x - 2y$
 - (5) $160 \cdot x \cdot y$
27. Gina was on a diet for three weeks. She lost 4 lb during the first week of her diet. She lost 2 lb during the second week and 2 lb during the third week. How much does Gina weigh now? Which expression represents the problem?
- (1) $8 - x$
 - (2) $8 + x$
 - (3) $x - 8$
 - (4) $14 - x$
 - (5) $3x + 8$
28. Jason worked 5 hours on Monday. He worked 2 hours longer than that on Tuesday. On Wednesday, he worked x hours. How many hours did he work in the three days? If the expression for this problem is $5 + 5 + 2 + x$, which is the simplified expression?
- (1) $5 + 5 - 2 + x$
 - (2) $5 + 5 + 12 + x$
 - (3) $10 + 2 + x$
 - (4) $12 + x$
 - (5) none of the above
29. Rita bought x dollars worth of compact discs for holiday gifts. Her mother gave her y dollars to purchase the gifts. Her sister gave her twice as much money as her mother. Her brother will pay the remaining amount. How much will her brother pay? Which simplified expression represents this problem?
- (1) $x + y + 2y$
 - (2) $2(x + 3y)$
 - (3) $x - 3y$
 - (4) $\frac{x - 3y}{2}$
 - (5) none of the above
30. Which is the simplified expression for the number y times seven plus six minus two?
- (1) $7 - 6 \cdot y$
 - (2) $13y$
 - (3) $6y + 7$
 - (4) $7y + 4$
 - (5) $7y + 6 - 2$
31. Which is the simplified expression for 88 minus 12, divided by a number n ?
- (1) $12 + 88 \div n$
 - (2) $76 \div n$
 - (3) $-88 \div n - 12$
 - (4) $88 - 12 \div n$
 - (5) $n \div 88 - 12$
32. Which is the simplified expression for $97x + 122x - 19x$?
- (1) $97x + 122x + 19x$
 - (2) $97x + 103x$
 - (3) $200x$
 - (4) $103x$
 - (5) none of the above