

Variables, Expressions & Equations

Algebra for Students.

Guided Practice Worksheet

Using Variables to Write Expressions

1. A son is 30 years younger than his father. Let n represent the father's age.

(a) Write an expression for the son's age.

(b) Use the expression for the son's age to complete the table.

Father's age	Expression	Son's age
n		
31		
39		
48		

2. On any given day, a pizza restaurant sells twice as many plain pizzas as ones with toppings. Let x represent the number of pizzas with toppings.

(a) Write an expression for the number of plain pizzas sold.

(b) Use the expression for the number of plain pizzas sold to complete the table.

Number of pizzas with toppings	Expression	Number of plain pizzas
x		
1		
2		
3		
4		

3. A pizza shop cuts every pizza into 8 slices. Let x represent the number of pizzas.

(a) Write an expression for the number of slices in a pizza.

(b) Use the expression for the number of slices in a pizza to complete the table.

Number of pizzas	Expression	Number of slices
x		
1		
2		
3		
4		
5		

4. The owner of a concession stand notices that for every bottle of soda sold, four bottles of water and 2 bottles of fruit juice are sold. Which of the following expressions represents the total number of bottles the owner should stock? Let x represent the number of soda bottles sold. Explain why you selected your answer, and why the other choices are incorrect.

- (a) $x = 4W + 2F$
- (b) $x + 4x + 2$
- (c) $x + 4x + 2x$
- (d) $4W + 2F$

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Simplifying Expressions

1. Brandon and Rayna order several slices of pizza — two pepperonis, a mushroom, two sausages, one broccoli, and one with onions. Meat slices cost \$1.50 each, while veggie slices cost \$1.25 each.

(a) Write an expression for the total cost of the slices of pizza.

(b) Determine the total cost of the slices by simplifying the expression.

2. Simplify the expression $3x^2 + 5xy + 9x^2 + 5x + y - 6x$.

3. Consider the expression $2(2x^2 + 4x) - (3x + 6) + x^2 - 5$.

(a) Simplify the expression.

(b) Evaluate the expression when $x = 2$.

(c) Check your solution by evaluating the original expression when $x = 2$.

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Solving Simple Equations

1. At the local movie theater, an adult ticket costs one-third more than a child ticket. The total cost of one adult ticket and one child ticket is \$17.50.

(a) Write an equation that describes the situation.

(b) Find the cost of one child ticket. Find the cost of one adult ticket. Check your solutions.

2. A day at the movies costs \$28, which includes one movie ticket, snacks worth twice the price of the movie ticket, and a \$4 round-trip bus ride.

(a) Write an equation that describes the situation.

(b) Find the cost of the movie ticket. Check your solution.