

Expressions and Equations

In this unit you learned to:	Lesson
evaluate numerical expressions that contain exponents, for example: $2^4 + 6 = 22$.	15
interpret and evaluate algebraic expressions, for example: $2(x + 7)$ means twice the sum of a number and 7.	16, 17
solve equations, for example: if $3 = \frac{1}{2}k$, then $k = 6$.	18, 19
solve inequalities, for example: if $3x \geq 15$, then $x \geq 5$.	20
use equations and inequalities to solve word problems.	19, 20
write equations to show the relationship between dependent and independent variables.	21

Use these skills to solve problems 1–8.

1 Which inequality is true?

- A $4^2 > 2^4$
- B $(5 + 2)^2 > 5^2 + 2^2$
- C $4^2 > 3^3$
- D $1 + 2^3 < 3^2 - 1$

2 Which equation has a solution of $n = 4$?

- A $6 + n = 24$
- B $5n = 54$
- C $12 - n = 16$
- D $7n = 28$

3 Bryce has 4 less than 3 times as many baseball cards as Dwight. Let x represent the number of cards that Dwight has.

Part A: Write an expression for the number of baseball cards Bryce has.

Part B: How many baseball cards does Bryce have if Dwight has 25 cards?

4 The perimeter of a square is at most 22 feet. Let n represent the length of one side of the square.

Part A: Write an inequality that represents the situation.

Part B: Of the lengths 2.5 ft, 4.8 ft, 5.2 ft, 5.8 ft, 6 ft, which could be the side length of the square? Write all that apply.

Solve.

- 5 The equation $c = 45h + 80$ represents the total cost, c , of a car repair that takes h hours.

Part A: Identify the dependent and independent variables.

Part B: Write three ordered pairs that satisfy the equation.

- 6 The length of a rectangle is 2 inches less than 5 times the width, w . What is an expression for the perimeter of the rectangle, in inches? Select all that apply.

- A $2(5w - 2) + 2w$
- B $w + w + 5w + 5w - 2$
- C $2(6w - 2)$
- D $12w - 4$

- 7 There are a total of 420 students at South School. This is 3 times the number of students in the sixth grade. How many students, n , are there in the sixth grade?

Show your work.

Solution: _____

- 8 Solve the equation for x .
 $ax + bx = 14$

Show your work.

Solution: _____