LESSON MAKER PRO

Expressions in Action

Write and evaluate expressions for everyday situations.

GRADE 6 · 6.AF.A.15

6.AF.A.15 "Write, read, and evaluate expressions in which letters represent numbers in real-world contexts. a. Interpret a variable as an unknown value for any number in a specified set, depending on the context. b..."

NAME _____ DATE _____

FROM WORDS TO MATH

Let x stand for a number that makes sense in the situation, such as a whole number of rides. Multiply the cost of one item by x, then add or subtract any fixed amount. To find a value, replace x with the given number and follow the order of operations.

WORKED EXAMPLE

A craft booth pays $13 for supplies and $3 for each badge it makes. Write an expression for the total cost of x badges. Then find the cost of making 4 badges.

1. The fixed cost is 13.
2. The badge cost is 3x, so the expression is 13 + 3x.
3. Replace x with 4: 13 + 3(4) = 13 + 12 = 25.

Answer: 13 + 3x; $25

PRACTICE 6 problems

1 A music app charges $8 each month plus $2 per downloaded song. Write an expression for one month's cost when you download x songs.

ANSWER _____

2 A sticker pack has 6 stickers. You buy x packs and give away 9 stickers. Write an expression for the stickers left. Let x be a whole number at least 2.

ANSWER _____

3 You start with 12 arcade tickets and earn 10 tickets each round. Write an expression for your tickets after x rounds. Then find your total after 6 rounds.

ANSWER _____

4 Evaluate $2x^2 + 6$ when x = 8.

ANSWER _____

5 Evaluate |x - 18| + 2 when x = 6.

ANSWER _____

6 Name the two terms and the coefficient of x in 9x + 16.

ANSWER _____

APPLY IT Show your work

1 A team pays $24 to enter a gaming tournament and $6 for each player. Let x be the number of players, a whole number from 2 to 8. Write an expression for the team's cost. What is the cost for 8 players?

WORK SPACE

ANSWER _____

2 Custom keychains cost $12 each. A $18 coupon is taken off the total order. Let x be the number of keychains, a whole number from 2 to 9. Write an expression for the cost after the coupon. What is the cost for 6 keychains?

WORK SPACE

ANSWER _____

CHALLENGE One step up

In a game, you earn x^2 points in each of 2 rounds. Then you lose |x - 10| points. Write an expression for your final score and find it when x = 8. Explain which operations you do before subtracting.

WORK SPACE AND ANSWER

ANSWER KEY

Expressions in Action

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A music app charges $8 each month plus $2 per downloaded song. Write an expression for one month's cost when you download x songs.	**8 + 2x**
2	A sticker pack has 6 stickers. You buy x packs and give away 9 stickers. Write an expression for the stickers left. Let x be a whole number at least 2.	**6x - 9**
3	You start with 12 arcade tickets and earn 10 tickets each round. Write an expression for your tickets after x rounds. Then find your total after 6 rounds.	**12 + 10x; 72 tickets**
4	Evaluate $2x^2 + 6$ when x = 8.	**134**
5	Evaluate $\|x - 18\| + 2$ when x = 6.	**14**
6	Name the two terms and the coefficient of x in 9x + 16.	**Terms: 9x and 16; coefficient of x: 9**

PART 2 · APPLY IT

1. **24 + 6x; $72** Add the $24 entry fee to $6 per player. Substitute 8 for x: 24 + 6(8) = 72.
2. **12x - 18; $54** Multiply $12 by the number of keychains, then subtract $18. Substitute 6 for x: 12(6) - 18 = 54.

CHALLENGE

$2x^2 - |x - 10| = 126$. Square 8 and find $|8 - 10|$ before subtracting.

Accept equivalent expressions, such as 2x + 8 for 8 + 2x. In the challenge, the square is 64 and the absolute value is 2, so 2(64) - 2 = 126.