LESSON MAKER PRO

Expression Detectives

Model situations with expressions and find their values.

GRADE 6 · 6.PAR.6

6.PAR.6 "Identify, write, evaluate, and interpret numerical and algebraic expressions as mathematical models to explain relevant situations."

NAME _____ DATE _____

TURN WORDS INTO MATH

An expression uses numbers, operations, and sometimes x to represent a situation. First decide what x means, then translate each part of the situation. To evaluate, replace x with its value and follow the order of operations.

WORKED EXAMPLE

A music shop earns $11 for each album sold and also earns a $17 bonus. Evaluate 11x + 17 when x = 13.

1. Substitute 13 for x: 11(13) + 17
2. Multiply: 143 + 17
3. Add: 160

Answer: $160

PRACTICE 6 problems

1 A game gives you x coins each day for 5 days, then gives you 4 extra coins. Write an expression for the total number of coins.

ANSWER _____

2 Evaluate 7x - 3 when x = 8.

ANSWER _____

3 Three boxes each hold x markers. There are also 5 loose markers. Write an expression for the total number of markers.

ANSWER _____

4 Which situation can be modeled by 4x + 5? A. You have 4 stickers, then get x more stickers, then get 5 more. B. You get 4 stickers in each of x packs, then get 5 extra stickers. C. You have 5 packs with 4 stickers each and give away x stickers.

ANSWER _____

5 Evaluate 3(x + 2) when x = 7.

ANSWER _____

6 A gamer earns 8 points for each level, x, and then loses 2 points. The score is represented by 8x - 2. What does the -2 represent?

ANSWER _____

APPLY IT Show your work

1 The esports club sells x snack bundles for $4 each. The club spends $7 on posters. Write an expression for the money the club has after paying for posters. Then find the amount when x = 12.

WORK SPACE

ANSWER _____

2 A student starts a reading challenge with 5 points. The student earns 8 points for each book read, x. Write an expression for the total points. Then find the total after 3 books.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A team orders x hoodies for $12 each and 3 water bottles for $5 each. The store takes $8 off the whole order. Write one expression for the total cost. Then evaluate it when x = 4 and explain what each part of the expression represents.

WORK SPACE AND ANSWER

ANSWER KEY

Expression Detectives

GRADE 6 · 6.PAR.6

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A game gives you x coins each day for 5 days, then gives you 4 extra coins. Write an expression for the total number of coins.	**5x + 4**
2	Evaluate 7x - 3 when x = 8.	**53**
3	Three boxes each hold x markers. There are also 5 loose markers. Write an expression for the total number of markers.	**3x + 5**
4	Which situation can be modeled by 4x + 5? A. You have 4 stickers, then get x more stickers, then get 5 more. B. You get 4 stickers in each of x packs, then get 5 extra stickers. C. You have 5 packs with 4 stickers each and give away x stickers.	**B**
5	Evaluate 3(x + 2) when x = 7.	**27**
6	A gamer earns 8 points for each level, x, and then loses 2 points. The score is represented by 8x - 2. What does the -2 represent?	**The gamer loses 2 points.**

PART 2 · APPLY IT

1. **4x - 7; $41** Multiply the number of bundles by $4, then subtract the $7 poster cost. Substitute 12: 4(12) - 7 = 41.
2. **8x + 5; 29 points** Multiply the books read by 8, then add the 5 starting points. Substitute 3: 8(3) + 5 = 29.

CHALLENGE

12x + 3(5) - 8 = 55. 12x is the cost of the hoodies, 3(5) is the cost of the water bottles, and -8 is the discount.

Accept equivalent expressions with terms in a different order, such as 4 + 5x for 5x + 4. For interpretation items, accept clear wording that correctly connects each term to the situation.