LESSON MAKER PRO

Expression Detective

Find how the parts of an expression fit together.

GRADE 6 · 6.AF.A.15.c

6.AF.A.15.c "Identify parts of an expression using mathematical terms such as sum, term, product, factor, quotient, and coefficient."

NAME _____ DATE _____

READ THE PARTS

Addition makes a sum with terms, multiplication makes a product with factors, and division makes a quotient. A coefficient is the number multiplying a variable. Use parentheses to see which parts belong together.

WORKED EXAMPLE

For 14x + 23, name the whole expression, its terms, the factors of 14x, and the coefficient of x.

1. The whole expression is a sum because its main operation is addition.
2. Its terms are 14x and 23.
3. The factors of 14x are 14 and x.
4. The coefficient of x is 14.

Answer: Sum; terms: 14x and 23; factors of 14x: 14 and x; coefficient: 14.

PRACTICE 6 problems

1 In 5x + 8, name the two terms and the coefficient of x.

ANSWER _____

2 In 7(x + 9), name the factors of the whole expression and the terms inside the parentheses.

ANSWER _____

3 Is (x + 4)/3 a sum, product, or quotient? Name the terms in its numerator.

ANSWER _____

4 In 11x + 6, which term is a product? Name its factors.

ANSWER _____

5 In 12 + x/10, which term is a quotient? What number is the divisor in that term?

ANSWER _____

6 List the three factors in 2 · x · 15. Then find the coefficient when the product is written as 30x.

ANSWER _____

APPLY IT Show your work

1 In a video game, you earn x points on each of 9 levels, then receive 2 bonus points. Your total is 9x + 2. Name the two terms. What does the coefficient of x tell you?

WORK SPACE

ANSWER _____

2 Four friends split the cost of 6 sticker packs at x dollars per pack, plus a $5 delivery fee. Each person's cost is (6x + 5)/4. Name the terms of the sum in the numerator. What does the divisor 4 represent?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A student says the terms of 8(x + 7) + 3x are 8, x, 7, 3, and x. Is the student correct? Name the terms of the whole expression and the factors of its first term. Explain why x + 7 is not a term of the whole expression.

WORK SPACE AND ANSWER

ANSWER KEY

Expression Detective

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	In 5x + 8, name the two terms and the coefficient of x.	**Terms: 5x and 8; coefficient: 5.**
2	In 7(x + 9), name the factors of the whole expression and the terms inside the parentheses.	**Factors: 7 and (x + 9); terms inside the parentheses: x and 9.**
3	Is (x + 4)/3 a sum, product, or quotient? Name the terms in its numerator.	**Quotient; terms in the numerator: x and 4.**
4	In 11x + 6, which term is a product? Name its factors.	**11x is a product; its factors are 11 and x.**
5	In 12 + x/10, which term is a quotient? What number is the divisor in that term?	**x/10 is a quotient; the divisor is 10.**
6	List the three factors in 2 · x · 15. Then find the coefficient when the product is written as 30x.	**Factors: 2, x, and 15; coefficient: 30.**

PART 2 · APPLY IT

1. **The terms are 9x and 2. The coefficient 9 tells you the number of levels.** The addition separates the two terms. In 9x, the factor 9 counts how many times x points are earned.
2. **The terms are 6x and 5. The divisor 4 represents the four friends sharing the cost.** The numerator adds the cost of the packs and the delivery fee. Dividing by 4 splits that total among four friends.

CHALLENGE

No. The terms of the whole expression are 8(x + 7) and 3x. The factors of its first term are 8 and (x + 7). The sum x + 7 is inside a product, so it is not a term of the whole expression.

Accept terms in either order. For the challenge, accept explanations that distinguish the addition inside the parentheses from the addition between the two main terms.