Name _____

1-8A Interpret Parts of Expressions

Objective To interpret the meaning of parts of an expression, such as terms, factors, and coefficients

Jillian has some money in a savings account. She adds the same amount to the account every week. The expression $25w + 200$ represents the amount Jillian has in her account after w weeks. Interpret each part of the expression.

$$25w + 200$$

25 ← a *coefficient* that represents the amount Jillian adds to the account each week, \$25

w ← a *variable* that represents the number of weeks

25*w* ← a *term* formed by the product of the **factors** 25 and w that represents the total amount she has added to the account, \$25 • w

200 ← a *constant term* that represents the amount of money that was originally in the account, \$200

Factors are multiplied to form a product.

The expression shows that the amount in Jillian's account after w weeks is \$200 more than the product of the number of weeks and \$25.

Examples

1 Marcus wants to buy a laptop for \$525. He saves \$75 each week. After x weeks, he will need to save $525 - 75x$ dollars to buy the laptop. Interpret each part of the expression.

525 ← the cost of the laptop

75 ← the amount Marcus saves in 1 week

x ← the number of weeks Marcus saves money

75*x* ← the amount Marcus has saved so far

2 Jamal saves nickels, dimes, and quarters in a jar. The total value of all the coins is given by $0.05n + 0.10d + 0.25q$. Interpret each part of the expression.

0.05, 0.10, 0.25 ← the value of each type of coin

n, d, q ← the number of each type of coin

0.05*n* ← the total value of nickels in the jar

0.10*d* ← the total value of dimes in the jar

0.25*q* ← the total value of quarters in the jar

Interpret the parts of the given expression. Then tell what the expression represents.

1. A factory has a total of m machines. Each machine produces n items per day. One day, 3 of the machines are not working. An expression for the number of items the factory produces that day is $(m - 3)n$.

m represents _____

n represents _____

3 represents _____

$(m - 3)$ represents _____

$(m - 3)n$ represents _____

2. Discuss and Write Suppose the factory in exercise 1 replaced each machine with a newer model that could produce items at a faster rate. Would your expression change if there were still 3 broken machines? Explain.

_____

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1-8A Interpret Parts of Expressions

Interpret the parts of the given expression. Then tell what the expression represents.

3. Alice starts with \$100. Each week after that, she spends the same amount. The total amount she has is $100 - 5w$.

4. The total earned by selling adult tickets for a dollars each and child tickets for c dollars each is $8a + 5c$.

5. The total earned by selling a adult tickets and c child tickets is $8a + 5c$.

6. The total cost of entering an amusement park and going on r rides is $\$12.50 + 3r$.

Problem Solving

Solve.

Use this situation for exercises 7–9.

This year, Jeremiah is 5 years older than half his sister Angie's age.

7. What expression represents Jeremiah's age in terms of Angie's age?

8. Interpret the expression you wrote in exercise 7.

9. Suppose Angie is 12 years old. How old is Jeremiah?

Use this situation for exercises 10–12.

A phone company charges a fixed fee for the first 50 text messages sent each month. Then it costs \$0.10 for each additional text message.

10. What expression represents Sue's total cost if she sends more than 50 messages in a month?

11. Interpret the expression you wrote in exercise 10.

12. What does Sue pay in May if the fixed fee is \$9.99 and she sends 78 text messages?

CRITICAL THINKING

13. Is it possible to interpret the same expression in different ways? Use exercises 4 and 5 to justify your answer.

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