

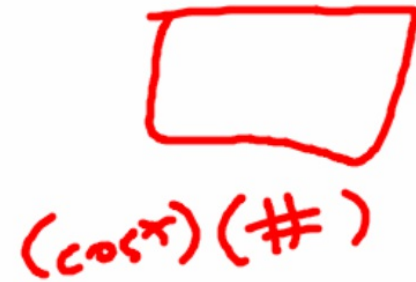
Define a variable and write each phrase as an algebraic expression.

(Examples 1–4)

1. four times more money than Elliot saved 4e
2. half as many pages as George read $\frac{1}{2}g$ or $g/2$
3. the width of a box that is 4 inches less than the length $l-4$
4. the cost of 5 CDs and a \$12 DVD $5c + 12d$

5. Shoko bought a box of popcorn for \$3.50 and three medium drinks. Define a variable and write an expression to represent the total amount they spent. Then find the total amount if one drink costs \$1.50. (Example 5)

$3.50 + 3d$
 $3.50 + 3(1.50) = 8.00$



Rate Yourself!

I understand how to write algebraic expressions.

▶▶ Great! You're ready to move on!

6. **CCSS Multiple Representations** Dani uses the table to help her convert measurements when she is sewing.

Number of feet	3	6	9	12
Number of yards	1	2	3	4

- a. **Words** Describe the relationship between the number of feet and the number of yards.

Sample answer: The number of yards is one third the number of feet.

- b. **Symbols** Write an expression for the number of yards in f feet.

$\frac{1}{3}f$ or $f \div 3$

- c. **Numbers** Find the number of yards in 63 feet.

21 yd

7. **CCSS Be Precise** An inch is equal to about 2.54 centimeters. Write an expression which estimates the number of centimeters in x inches. Then estimate the number of centimeters in 12 inches.

$2.54x$; 30.48 cm

8. **Financial Literacy** On a recent day, a Euro was equal to about 1.2 American dollars. Write an expression which estimates the number of dollars in x Euros. Then estimate the number of American dollars equal to 25 Euros.

$1.2x$; \$30

9. Justin is 2 years older than one third Marcella's age. Aimee is four years younger than 2 times Justin's age. Define a variable and write an expression to represent Justin's age. Then find Justin's age and Aimee's age if Marcella is 63 years old.

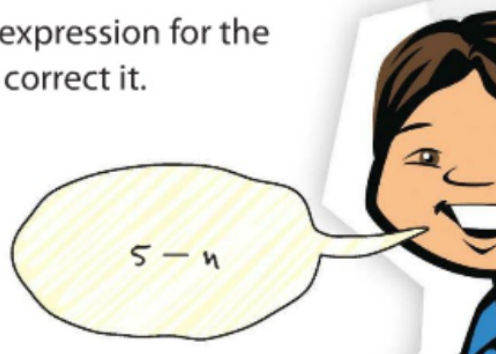
$m = \text{Marcella's age}; \frac{1}{3}m + 2$; Justin is 23 years old and Aimee is 42 years old.



H.O.T. Problems Higher Order Thinking

10. **CCSS Find the Error** Elisa is writing an algebraic expression for the phrase *5 less than a number*. Find her mistake and correct it.

Sample answer: She is indicating
 $a \text{ number less than } 5$; $n - 5$ is the
correct expression.



11. **CCSS Persevere with Problems** Wendy earns \$2 for every table she serves plus 20% of the total customer order. Define a variable and write an expression to represent the amount of money she earns for one table.

$c = \text{total customer order}; 2 + 0.2c$

12. **CCSS Justify Conclusions** If n represents the amount of songs stored on an MP3 player, analyze the meaning of the expressions $n + 7$, $n - 2$, $4n$, and $n \div 2$.

Sample answer: 7 more songs, 2 fewer songs, 4 times the songs, and half the number of songs.

13. **CCSS Justify Conclusions** Determine whether the statement below is *always*, *sometimes*, or *never* true. Justify your reasoning.

The expressions $x - 3$ and $y - 3$ represent the same value.

sometimes; Sample answer: $x - 3$ and $y - 3$ represent the same values only when $x = y$.

14. **CCSS Reason Inductively** Suppose x is an odd number. Write an expression to represent each of the following:

a. The odd number immediately following x . **$x + 2$**

b. The odd number immediately preceding x . **$x - 2$**

