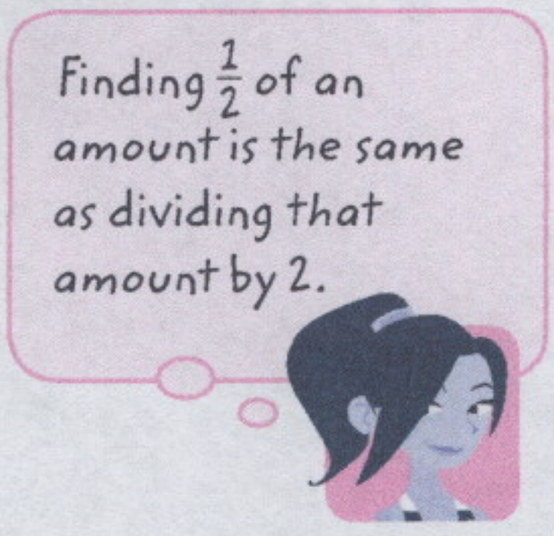
Name: _____

Algebraic Expressions

Solve the problems.

1 Lewa's hiking backpack weighs 5 pounds less than $\frac{1}{2}$ the weight of Alani's hiking backpack. Write an expression to describe the weight of Lewa's backpack. How many pounds does Lewa's backpack weigh if Alani's backpack weighs 36 pounds?

Show your work.



Solution: _____

2 A bookcase has two shelves. The top shelf has 10 more than $\frac{1}{3}$ the number of books on the bottom shelf. There are 12 books on the bottom shelf. How many books are on the top shelf?

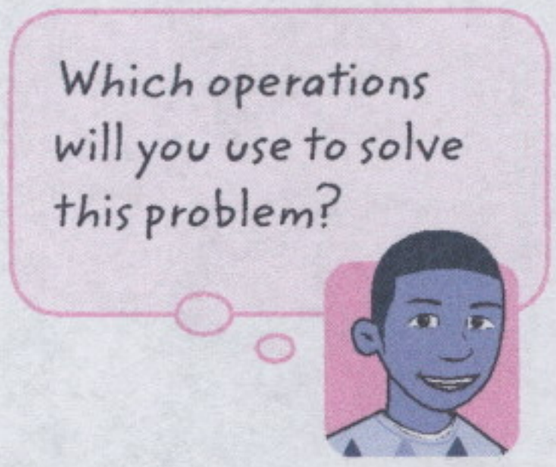
A 4

B 14

C 40

D 46

Cohen chose **D** as the correct answer. How did he get that answer?



_____

_____

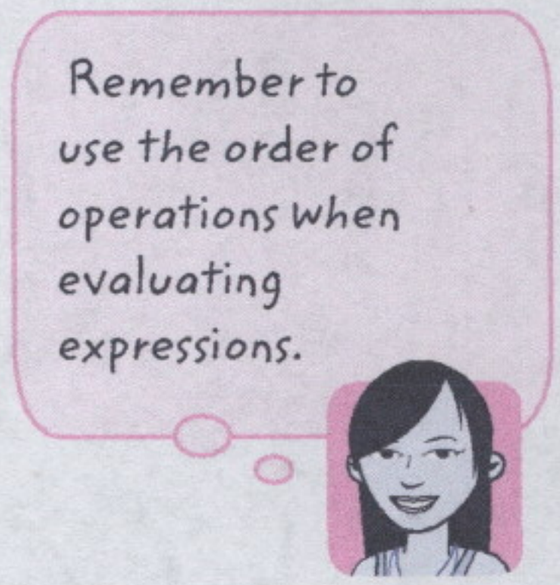
3 Which expression equals 6 when $a = 5$ and $b = \frac{1}{3}$? Circle all that apply.

A $9b^2 + 3a - 10$

B $a^2 - 20 - 3b$

C $3(a - 2) - a + 6b$

D $9b + ab$



Solve.

4 Martin used some apples to make muffins. Omar used some apples to make applesauce. Omar used 5 fewer than half as many apples as Martin used.

a. Write an expression to show the number of apples that Martin and Omar used in all. What does your variable represent?

_____

_____

b. Could Martin have used 10 apples? Why or why not? Use the expression to help you decide.

Show your work.

Solution: _____

_____

_____

_____

After you find the solution, read the problem again and check to be sure that your solution makes sense.

5 Lilla read $\frac{1}{5}$ of her book last week. This week she read 3 times as much as she read last week.

a. Write an expression to show how much of her book Lilla has left to read. Then simplify the expression.

_____

_____

b. There are 75 pages in Lilla's book. How many pages does she have left to read?

Show your work.

Solution: _____

What should the variable in your expression represent?