Visual Learning Animation

www.pearsonsuccessnet.com or CD

Which is an algebraic expression, 3 + 4 or d − 3? Explain how you know. [$d - 3$; $3 + 4$ does not have a variable. $d - 3$ has a variable, a number, and an operation, so it fits the definition of an algebraic expression.]

Since the weight of the mixed nuts varies, let w represent the total weight of the jar and the mixed nuts.

So, $w - 4$ is the weight of the mixed nuts after the weight of the jar is subtracted.

How does w − 4 describe the weight of the nuts? [w stands for the weight of the jar and the nuts, which could vary. To find the weight of the nuts alone, you subtract the weight of the jar, which is 4 ounces.]

An algebraic expression is a mathematical phrase involving variables, numbers, and operations.

Operation	Word Phrase	Algebraic Expression
Addition	a number *plus* 4 a number *added* to 4	$w + 4$
Subtraction	a number *minus* 4 a number *less* 4	$w - 4$
Multiplication	4 *times* a number	$4 \times w$ or $4w$
Division	a number *divided* by 4	$w \div 4$ or $\frac{w}{4}$

Since the weight of the mixed nuts varies, let w represent the total weight of the jar and the mixed nuts.

So, $w - 4$ is the weight of the mixed nuts after the weight of the jar is subtracted.

Problem Solving

21. You and three of your friends are going to share a package of granola bars equally. Write an algebraic expression to show this situation.
$p \div 4$

22. In January, Winifred had $1,369.57 in her savings account. In December, she had $2,513.34 in her account. How much more money did she have in December than in January?
$1,143.77

23. Jeff added $\frac{4}{5}$ cup of water to $\frac{2}{3}$ cup of lemonade concentrate. Is there more water or concentrate?
Water

24. Writing to Explain How are the expressions $7 - g$ and $g - 7$ different?
See margin.

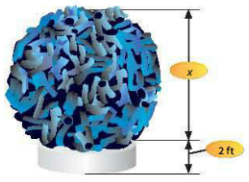
25. Think About the Process Nao has 6 fewer CDs than Emily. If c represents the number of CDs Emily has, which expression tells how many CDs Nao has?

A $c + 6$ **C** $6 - c$
B $c - 6$ **D** $6 + c$

26. A person has to be at least 48 inches tall to ride a roller coaster. Jill, who is 12 years old, is taller than 48 inches. Which expression shows Jill's height?

A $(12 + t) - 48$ **C** $(48 - 12) + t$
B $48t$ **D** $48 + t$

27. This drawing of the sculpture of a ball of jeans shows a stand beneath it. If the stand and sculpture measure 18 feet, which equation shows how to find the height of the sculpture?



A $18 + x = 2$ **C** $x - 18 = 2$
B $x + 2 = 18$ **D** $2 - 18 = x$

28. Juan is planning to buy a new computer monitor. He has already saved $250. Let n equal the amount Juan still needs to save. Write an algebraic expression that represents the cost of the monitor.
$250 + n$

24. $g - 7$ is a number minus 7, and $7 - g$ is 7 minus a number. These two expressions are not the same since subtraction is not commutative.

Problem Solving

Exercise	Content
21	Algebraic Expressions
22	Subtraction (2,513.34 − 1,369.57)
23	Compare Fractions
24	Communicate Math Understanding Algebraic Expressions
25	Algebraic Expressions
26	Algebraic Expressions
27	Algebraic Expressions
28	Algebraic Expressions

Students use underlying processes and mathematical tools for Exercises 21–28. Remind students to check for reasonableness when solving each problem.

Exercise 21

Language of Math: Identify Relationships Remind students that in many math situations, words such as "share" and "equally" are used to split up or divide a value. ***What words in this exercise mean to split up the granola bars?*** [Equally share] ***What operation do you perform when you split something into equal groups?*** [Division]

Exercise 26

Test-Taking Tip: Make Smart Choices Remember that sometimes you can eliminate wrong answers by rethinking what the question is really asking. ***What information is not needed in the problem?*** [We don't need to know how old Jill is.] ***Can that help eliminate any answers?*** [Yes, A and C can be eliminated.] ***What is answer B saying?*** [Someone is 48 times as tall as some number.] ***Is Jill 48 times taller than it takes to go on the ride?*** [No, so you can eliminate that choice.]

Early Finishers ***Write an expression for Exercise 23 to show how much more water there is than concentrate.*** [$\frac{4}{5} - \frac{2}{3}$]