

# Activity 7 Assessment

## Investigating Algebraic Properties

### Variables and Equations

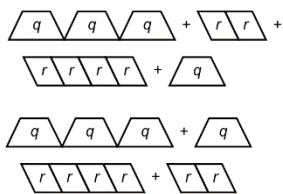
Evaluates a numerical expression using the order of operations.

$$\begin{aligned} & 80 \div 5 \times (2 + 3) - 23 \\ & = 80 \div 5 \times 5 - 23 \\ & = 80 \div 5 \times 5 - 8 \\ & = 16 \times 5 - 8 \\ & = 80 - 8 \\ & = 72 \end{aligned}$$

“I have to do the operation in parentheses first, then the power, then the multiplication and division in the order they appear, and then the subtraction.”  
 (« Je dois d’abord calculer l’opération entre parenthèses, puis la puissance, puis la multiplication et la division dans l’ordre où elles apparaissent, et enfin la soustraction. »)

Models an algebraic expression and combines like terms.

$$3q + 2r + 4r + q$$



$$\begin{aligned} & "3q + 2r + 4r + q = 4q + 6r" \\ & ("3q + 2l + 4l + q = 4q + 6l ") \end{aligned}$$

Uses algebraic properties to rearrange terms in an algebraic expression.

$$\begin{aligned} & 6(b + 3) + 7b \\ & = 6 \times b + 6 \times 3 + 7b \\ & = 6b + 18 + 7b \\ & = 6b + 7b + 18 \end{aligned}$$

“I used the distributive property to eliminate the parentheses, then I used the commutative property to rearrange the terms.”  
 (« J’ai utilisé la distributivité pour éliminer les parenthèses, puis j’ai utilisé la commutativité pour réorganiser les termes. »)

Simplifies algebraic expressions by combining like terms.

$$\begin{aligned} & 6(b + 3) + 7b \\ & = 6 \times b + 6 \times 3 + 7b \\ & = 6b + 18 + 7b \\ & = 6b + 7b + 18 \\ & = 13b + 18 \end{aligned}$$

“6b and 7b are like terms so I can add them.”  
 (« 6b et 7b sont des termes semblables, je peux donc les additionner. »)

### Observations/Documentation

# Activity 7 Assessment

## Investigating Algebraic Properties

Variables and Equations (cont'd)			
<p>Simplifies expressions on both sides of an equation.</p> $2(3d + 4) - 1 = 100 \div 4$ $6d + 2 \times 4 - 1 = 25$ $6d + 8 - 1 = 25$ $6d + 7 = 25$ <p>“I used algebraic properties to simplify the expressions on both sides of the equation. Now I have an equation with two operations.”  <i>(« J’ai utilisé les propriétés algébriques pour simplifier les expressions des deux côtés de l’équation. J’ai maintenant une équation avec deux opérations. »)</i></p>	<p>Solves equations involving one or two operations using different strategies.</p> $6d + 7 = 25$ $6d + 7 = 18 + 7$ <p>So, <math>6d = 18</math></p> <p>“I used a balance model. Then, I know <math>6 \times 3 = 18</math>, so <math>d = 3</math>.”  <i>(« J’ai utilisé une balance comme modèle. Je sais donc que <math>6 \times 3 = 18</math>, donc <math>d = 3</math>. »)</i></p>	<p>Verifies the solution to an equation.</p> $2(3d + 4) - 1 = 100 \div 4$ $6d + 7 = 25$ <p>To check, substitute <math>d = 3</math>.          Left side = <math>2(3d + 4) - 1</math>  <math>= 2(3 \times 3 + 4) - 1</math>  <math>= 2(13) - 1</math>  <math>= 26 - 1</math>  <math>= 25</math></p> <p>Right side = <math>100 \div 4</math>  <math>= 25</math></p> <p>“Since the left side equals the right side, my solution is correct.”  <i>(« Puisque le côté gauche est égal au côté droit, ma solution est juste. »)</i></p>	<p>Flexibly works with equations to solve problems using a variety of strategies.</p> <p>Ava rents a bicycle to ride around the city. There is a flat fee of \$10, plus \$3 per hour. Ava pays a total of \$28. For how many hours did Ava rent the bicycle?</p> <p><math>10 + 3n = 28</math>, where <math>n</math> is the number of hours that Ava rented the bicycle.</p> $10 - 10 + 3n = 28 - 10$ $3n = 18$ $n = 6$ <p>“I know <math>3 \times 6 = 18</math>, so <math>n = 6</math>. Ava rented the bicycle for 6 hours.”  <i>(« Je sais que <math>3 \times 6 = 18</math>, donc <math>n = 6</math>. Ava a loué la bicyclette pour 6 heures. »)</i></p>
Observations/Documentation			