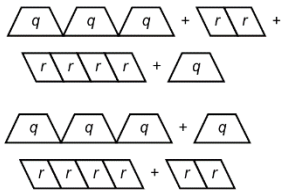
Patterning and Algebra

Activity 5 Assessment

The Order of Operations

Variables and Equations			
Evaluates a numerical expression using the order of operations. $80 \div 5 \times (2 + 3) - 23$ $= 80 \div 5 \times 5 - 23$ $= 80 \div 5 \times 5 - 8$ $= 16 \times 5 - 8$ $= 80 - 8$ $= 72$ "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."	Models an algebraic expression and combines like terms. $3q + 2r + 4r + q$  "$3q + 2r + 4r + q = 4q + 6r$"	Uses algebraic properties to rearrange terms in an algebraic expression. $6(b + 3) + 7b$ $= 6 \times b + 6 \times 3 + 7b$ $= 6b + 18 + 7b$ $= 6b + 7b + 18$ "I used the distributive property to eliminate the parentheses, then I used the commutative property to rearrange the terms."	Simplifies algebraic expressions by combining like terms. $6(b + 3) + 7b$ $= 6 \times b + 6 \times 3 + 7b$ $= 6b + 18 + 7b$ $= 6b + 7b + 18$ $= 13b + 18$ "$6b$ and $7b$ are like terms so I can add them."
Observations/Documentation			

Activity 5 Assessment
The Order of Operations

Variables and Equations (cont'd)			
Simplifies expressions on both sides of an equation. $2(3d + 4) - 1 = 100 \div 4$ $6d + 2 \times 4 - 1 = 25$ $6d + 8 - 1 = 25$ $6d + 7 = 25$ "I used algebraic properties to simplify the expressions on both sides of the equation. Now I have an equation with two operations."	Solves equations involving one or two operations using different strategies. $6d + 7 = 25$ $6d + 7 = 18 + 7$ So, $6d = 18$ "I used a balance model. Then, I know $6 \times 3 = 18$, so $d = 3$."	Verifies the solution to an equation. $2(3d + 4) - 1 = 100 \div 4$ $6d + 7 = 25$ To check, substitute $d = 3$. Left side $= 2(3d + 4) - 1$ $= 2(3 \times 3 + 4) - 1$ $= 2(13) - 1$ $= 26 - 1$ $= 25$ Right side $= 100 \div 4$ $= 25$ "Since the left side equals the right side, my solution is correct."	Flexibly works with equations to solve problems using a variety of strategies. 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? $10 + 3n = 28$, where n is the number of hours that Ava rented the bicycle. $10 - 10 + 3n = 28 - 10$ $3n = 18$ $n = 6$ "I know $3 \times 6 = 18$, so $n = 6$. Ava rented the bicycle for 6 hours."
Observations/Documentation			