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| **Variables and Equations** | | | |
| Evaluates a numerical expression using the order of operations  2 (30 + 18) – 3 = 2 × 48 – 3  = 96 – 3  = 93  “I have to do the operation in brackets first, then the multiplication, and then the subtraction.” | Writes an algebraic expression to describe an unknown value  Subtract five from a number,  then multiply by two  (*n* – 5) 2  “I let *n* represent the number.  I used brackets so 5 would be subtracted first.” | Evaluates an algebraic expression using substitution  (*n* – 5) 2  “To find the value of the expression when *n* equals 12, I substitute  12 for *n*.”  (*n* – 5) 2 = (12 – 5) 2  = 7 × 2  = 14 | Solves equations involving one operation using different strategies  23 = *e* + 15  23 – 15 = *e* + 15 – 15  8 = *e*  “I used the inverse operation, subtracting 15 from each side.” |
| **Observations/Documentation** | | | |
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| **Variables and Equations (cont’d)** | | | |
| Solves equations involving two operations using different strategies  29 = 3*z* + 2  29 − 2 = 3*z* + 2 − 2  27 = 3*z*  =   9 = *z*  “I performed the order of operations in the reverse order to isolate the variable. I subtracted 2 from each side, then divided each side by 3.” | Verifies the solution to an equation  29 = 3*z* + 2  “To verify, substitute *z* = 9.  Left side = 29  Right side = 3(9) + 2  = 27 + 2  = 29  Since the left side equals the right side, my solution is correct.” | Solves problems using equations involving one or two operations    Kairis sold 16 tickets.  That is twice as many tickets  as Grace sold.  How many tickets did Grace sell?  Let *t* represent the number of tickets Grace sold.  2*t* = 16  =   *t* = 8  “So, Grace sold 8 tickets.” | Flexibly works with equations to solve problems using a variety of strategies  At the grocery store, there are 5 lines of people at the checkouts. There are the same number of people in each line. The manager counts to determine the total number of people at the checkouts, including 6 employees (including the manager). They counted 51 people.  How many people are in each line?  Let *n* represent the number of people  in each line.  5*n* + 6 = 51  5*n* + 6 – 6 = 51 – 6  5*n* = 45  *n* = 9  “I know 5 × 9 = 45, so *n* = 9. There are 9 people in each line.” |
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| **Using Variables to Represent a Problem as an Equation** | | | |
| Interprets word problems/pictures and identifies the unknown part  Our class needs to set up rows  of 6 chairs for a presentation.  There are 30 chairs altogether.  How many rows do we need?  A grey scale with blue and red cubes  Description automatically generated  “The unknown is the number of rows of 6 chairs needed to make an array of 30 chairs.” | Translates word problems into equations using variables, operations, and numbers  A row of blue chairs  Description automatically generated  “The unknown, *n*, is the number of rows. I know there are 6 chairs in each row and a total of 30 chairs.  So, 6*n* = 30.” | Describes equivalent relationships using more than one equation (including formulas)  A square with black text and numbers  Description automatically generated  “I know the area of a rectangle is base multiplied by height, which is 30. If the base is 6, then the height must be *n*. I could write the equation 30 = 6*n* or 30 ÷ 6 = *n*.” | Flexibly writes algebraic equations using a variety of strategies  6*n* = 30  30 ÷ *n* = 6  “I can use the inverse operation  to rewrite the equation.” |
| **Observations/Documentation** | | | |
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