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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 – 158 = *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* + 229 − 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 equation29 = 3*z* + 2 “To verify, substitute *z* = 9. Left side = 29 Right side = 3(9) + 2 = 27 + 2 = 29Since 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 strategiesAt 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 = 515*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.” |
| **Observations/Documentation** |
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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 numbersA 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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