Lesson 2-5
Writing Algebraic Expressions

Today’s Supplies

➢ Glue
➢ Math Book – Volume 2
Process Standard:

5.1G - display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Standard:

5.4 - apply mathematical process standards to develop concepts of expressions and equations
<table>
<thead>
<tr>
<th>Word</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>A letter that takes the place of an unknown number in an expression or equation</td>
<td>$x, y, a, b, n$</td>
</tr>
<tr>
<td>Algebraic Expression</td>
<td>A combination of variables, numbers, and operations</td>
<td>$z, e, s$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$x + 5$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$3 ÷ y + x$</td>
</tr>
</tbody>
</table>
HINT:

A variable and a number side by side mean to multiply!!

$3x$ means $3$ times $x$

$14y$ means $14$ times $y$
<table>
<thead>
<tr>
<th>Key Words</th>
<th>Addition</th>
<th>Subtraction</th>
<th>Multiplication</th>
<th>Division</th>
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<tbody>
<tr>
<td></td>
<td>Sum</td>
<td>Difference</td>
<td>Product</td>
<td>Quotient</td>
</tr>
<tr>
<td></td>
<td>Add</td>
<td>Subtract</td>
<td>Times</td>
<td>Divide</td>
</tr>
<tr>
<td></td>
<td>Plus</td>
<td>Minus</td>
<td>Multiply by</td>
<td>Divided by</td>
</tr>
<tr>
<td></td>
<td>Increase by</td>
<td>Decreased by</td>
<td>Twice ( \times 2 )</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Combine</td>
<td>Diminished</td>
<td>Double ( \times 2 )</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>Triple ( \times 3 )</td>
<td></td>
</tr>
</tbody>
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- **Reverse order words**
  - *Added to*  
  - *More than*  
  - *Longer than*  
  - *Older than*
  - *Subtracted from*  
  - *Less than*  
  - *Shorter than*  
  - *Younger than*

"is" means =
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<td>Triple</td>
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*Added to     *Subtracted from
*More than    *Less than
*Longer than  *Shorter than
*Older than   *Younger than

*Reverse order words

1. The sum of some number and 6 \( n + 6 \)
2. The difference of some number and 7 \( n - 7 \)
3. The product of some number and 3 \( 3n \)
4. The quotient of some number and 5 \( \frac{n}{5} \)
### Key Words

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* *Reverse order words*

5. 15 more than some number \( n + 15 \)
6. Some number less than 7 \( 7 - n \)
7. 12 more than twice a number \( 2n + 12 \)
8. 3 times the sum of 13 and some number \( 3(13 + n) \)
9. 14 times the difference of 16 and some number \(14(16-n)\)

10. Double some number and subtract 9 \(2n-9\)

11. 3 times some number decreased by 10 \(3n-10\)
In 1 through 4, write an algebraic expression for each situation.

1. the difference of a number $t$ and 22
   \[ t - 22 \]

2. $m$ bicycles added to 18 bicycles
   \[ 18 + m \]

3. 11 times a number $z$
   \[ 11z \]

4. 4 less than 5 times a number $g$
   \[ 5g - 4 \]

5. In the example at the top of page 516, what does the variable $n$ represent?

6. **Reason** Identify the variable and the operation in the algebraic expression $8y$.

7. **Represent** Write an algebraic expression for this situation: $n$ more students than the 8 students sitting in each of the 3 rows.
For 8 through 15, write algebraic expressions.

8. A number \( p \) **increased** by 22
\[ p + 22 \]

9. 15 **divided** by a number \( r \)
\[ \frac{15}{r} \]

10. 12 **more than** 8 times a number \( p \)
\[ 8p + 12 \]

11. 6 **less than** 7 times a number \( b \)
\[ 7b - 6 \]

12. 5 **more than** the product of \( x \) and 9
\[ 9x + 5 \]

13. 7 times the difference of \( y \) and 4
\[ 7(y - 4) \]

14. 3 **less than** the quotient of 24 divided by \( a \)
\[ \frac{24}{a} - 3 \]

15. 7 times a number \( s \) **added** to 16
\[ 16 + 7s \]
Algebraic Expression
ws #1