## 4.4 Translate Expressions

Sometimes, you can represent a word phrase with a numerical expression and sometimes with an algebraic expression. The table shows examples of word phrases that signal the use of a grouping symbol.

| Word Phrase | Expression |
|---|---|
| 2 plus 3, times 4 | (2 + 3) x 4 |
| 7 plus 5, divided by the sum of 3 and 1 | (7 + 5) ÷ (3 + 1) |
| a number tripled, plus 2 | 3n + 2 |
| the difference of a number and 10, times 2 | (m - 10) x 2 |

**Commas help you decide where to place grouping symbols or start a new term.**

**Example:** Write as a numerical expression. Then, simplify.

1.) nine minus six multiplied by seven

$(9-6) \times 7$

$(9-6) \times 7$

$3 \times 7$

$21$

2.) 16 times, the sum of 2.5 and 0.12

$16 \times (2.5+0.12)$

$2.50 + 0.12 = 2.62$

$16 \times (2.5+0.12)$

$16 \times 2.62$

$41.92$

$$\begin{array}{r} 262 \\ \times\ 16 \\ \hline 1572 \\ +2620 \\ \hline 41.92 \end{array}$$

**Example:** Write as an algebraic expression. Use n as the variable.

3.) one half of a number, increased by 27

$\frac{1}{2}n + 27$ $\left(\frac{1}{2} \times n\right) + 27$

4.) 150 less than double a number

$2n - 150$ $(2 \times n) - 150$

5.) the quotient of a number and the difference of 5.9 and 1.7

$\frac{n}{(5.9 - 1.7)}$ $n \div (5.9 - 1.7)$

**Example:** Write each expression as a word phrase.

6.) $3n - 9$

* a number tripled, minus nine
* three multiplied by a number, minus nine
* a number times three, decreased by nine

7.) $\frac{n}{5} + 10$

* the quotient of a number & five, increased by ten
* a number divided by five, plus ten
* a number split five, increased by ten

8.) $105 \div (7.5x)$

* 105 separated by, 7.5 times a number
* 105 split the product of 7.5 & a number
* 105 divided by, 7.5 multiplied by a number