Lesson 5.3   Writing Expressions

An **equation** is a number sentence that contains an equal sign.
An **expression** is a number phrase without an equal sign.
Equations and expressions may contain only numerals, or they also may contain variables. A
variable is a symbol, usually a letter, that stands for an unknown number.

	Equation	*Expression*
Numerical	$3 \times 5 = 15$	$9 + 2$
Variable	$2n + 2 = 18$	$a - 5$

All equations and expressions express an idea.

3×4 means "three 4s." $6 \div 3 = 2$ means "6 divided by 3 is 2."

$n - 7$ means "n decreased by 7" or "a number decreased by 7."

$4n + 2 = 6$ means "four times a number, plus 2, is 6" or "4ns, plus 2, is 6."

Translate each phrase into an expression or an equation.

a   **b**

1. x increased by 5 ___x + 5___   12 divided by a number ___12/n___

2. seven ns ___7n___ c less than 7 ___7 - c___

3. a number added to 15 is 23 ___15 + n = 23___   one-fourth of x ___1/4 x___

4. p added to 6 ___6 + p___   the product of 15 and m ___15m___

Translate each sentence into an equation. Use n for an unknown number.

5. 11 decreased by a number is 7. ___11 - a = 7___

6. 8 times a number, plus 4, is 84. ___8n + 4 = 84___

7. A number divided by 5 is 6. ___n/5 = 6___

Write each expression in words.   Answers will vary. Samples are below.

8. $n - 5$ ___five less than a number OR a number decreased by five___

9. $3n \div 6$ ___three times a number divided by 6 OR the product of three and a number divided by 6___

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Translate each phrase into an algebraic expression or an equation.

a   **b**

1. subtract 8 from 3 times d __3d - 8__   take away 3 from x _____

2. g minus 2 is 14 __g - 2 = 14__ z is added to 8 __8 + z__

3. the sum of 7 and z __7 + z__   2 is subtracted from 4 times d __4d - 2__

4. two-fifths of the sum of 6 and s __2/5 (6s)__   9 minus c __9 - c__

5. 10 minus x __10 - x__   subtract 9 from the product of 4 and f __4f - 9__

6. 3 is subtracted from 5 times a __5a - 3__ y minus 3 is 15 __y - 3 = 15__

7. s is added to 9 __9 + s__   the sum of 8 and t __8 + t__

8. take away 9 from h __h - 9__   one-third of the sum of 7 and k __1/3 (7 + k)__

Write each expression in words.

9. $9 \div x$ __nine divided by a number__

10. $3 \times g = 27$ __the product of three and a number is twenty-seven__

11. $6 \times m - 4$ __The product of 6 and a number, decreased by 4__

12. $\frac{1}{2} \times b + 9 = 11$ __1/2 a number increased by 9 is 11__

13. $14 \div p$ __14 divided by a number__

14. $6 \times b = 42$ __the product of 6 and a number is 42__

15. $9 \times d - 10$ __the product of 9 and a number, decreased by 10__

16. $\frac{1}{4} \times t + 8 = 16$ __1/4 a number, increased by 8 is 16__