

Name: _____ Date: _____ Period: _____

WS "Stilwell Skills Practice 1-1"

For questions 1-26, evaluate each expression. Show your work 😊

1) $12 \div 3 \times 2$

2) $20 - 10 + 4$

3) $9 + 3 \times 5$

4) $16 + 8 \div 4 - 2$

5) $32 \div 4 + 3 \times 10$

6) $8 + 6 - 4 \times 3$

7) $7 \times (8 + 12)$

8) $(15 - 10) \div 5$

9) $36 - (12 - 8)$

10) $(3 + 6) \times (12 - 9)$

11) $(3 + 6) \times 12 - 9$

12) $3 + 6 \times 12 - 9$

13) $16 \div 8 + 4$

14) $6 \times 10 - 3$

15) $24 \times 2 \div 2$

16) $33 - 8 - 6$

17) $16 + 30 \div 5$

18) $45 \div 5 \times 9$

19) $37 - 12 + 10$

20) $(75 - 25) \div 10$

21) $20 \times (30 - 25)$

22) $48 + 8 \div 4 + 4$

23) $(24 + 8) \div 4 + 4$

24) $24 + 8 \div (4 + 4)$

25) $24 + 12 \times 6 - 1$

26) $(24 + 12)(6 - 1)$

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For questions 27-36, tell whether the following statements are TRUE or FALSE. If the statement is false provide parentheses to make the statement true.

_____ 27) $8 \times 3 + 3 = 27$

_____ 31) $7 + 5 \times 5 = 60$

_____ 28) $8 \times 3 + 3 = 48$

_____ 32) $7 + 5 \times 5 = 32$

_____ 29) $14 - 6 \div 2 = 11$

_____ 33) $10 - 8 \div 2 = 6$

_____ 30) $14 - 6 \div 2 = 4$

_____ 34) $10 - 8 \div 2 = 1$

_____ 35) $6 \times 4 + 8 \div 2 = 28$

_____ 36) $6 \times 4 + 8 \div 2 = 36$

Stumper

Place the numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9 in the squares below so that all of the number sentences are true. You must use EACH number ONLY once.

$$(\quad + \quad) \div 8 = 1$$

$$(\quad - \quad) \times 4 = 4$$

$$6 + (\quad \times \quad) = 6$$

$$(\quad \times \quad) - 6 = 2$$

$$\quad + (6 \div \quad) = 13$$

FINALLY DONE



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WS "Stilwell Practice 1-1"

For questions 1-30, evaluate each expression. Show your work 😊

1) $\frac{6(3)}{2}$

2) $\frac{20}{2(5)}$

3) $\frac{12(4)}{2(3)}$

4) $\frac{9}{3}(5)$

5) $\frac{10+8}{2}$

6) $\frac{12}{5+1}$

7) $\frac{8+7}{6-1}$

8) $\frac{6}{3} + 9$

9) $\frac{24}{4} - 4$

10) $7 + \frac{12}{2}$

11) $\frac{36}{4} - \frac{12}{2}$

12) $\frac{4(7+8)}{5}$

13) $\frac{9(4+4)}{6}$

14) $\frac{24}{2(5-1)}$

15) $\frac{3(8+4)}{2(7-4)}$

16) $\frac{5(8)}{10} + 1$

17) $\frac{40}{2(4)} - 3$

18) $16 - \frac{6(5)}{10}$

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$$19) \frac{8(3)}{4} + \frac{5(6)}{2}$$

$$20) 8 + \frac{24-6}{3}$$

$$21) \frac{48}{8} - (11 - 9)$$

$$22) \frac{3(8)}{6(2)} + \frac{10(3)}{5(2)}$$

$$23) 8(6) - (8 + 6)$$

$$24) 8(6) - 8 + 6$$

$$25) \frac{28}{4} - \frac{2(4+1)}{5}$$

$$26) \frac{5(4)}{6 \cdot 2 \div 6}$$

$$27) \frac{3^3}{3} (6)$$

$$28) \frac{28}{2^2 + 3}$$

$$29) 27 \div 3 \cdot 2 + 4^2$$

$$30) \frac{3(9-2)}{7}$$

Evaluate each expression if $a = 2$ and $b = 3$. Show your work ☺

$$31) \frac{6a}{b}$$

$$32) \frac{7(b+5)}{a}$$

$$33) \frac{3a+2b}{ab}$$

$$34) \frac{8a}{4} - \frac{6(b+2)}{10}$$

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WS "Stilwell Practice 1-2"

Algebraic Expressions

Write an algebraic expression for each word phrase.

1) Ten more than a number b

2) The product of seven and a number y

3) Seven increased by a number m

4) Twelve minus a number v

5) Three times a number x

6) A number c plus eight

7) A number u multiplied by eleven

8) Three less than a number p

9) The total of five and a number m

10) A number n divided by nine

11) A number k less seventy-eight

12) A number n added to a number c

13) The product of a number z and nine

14) The total of five and a number c

15) The difference of a number r and six

16) The quotient of a number m and three

17) A number v decreased by four.

18) The remainder when five is subtracted from six times a number a

19) The product of two and a number p added to seven

20) The quotient when a number z is divided by fourteen

21) The difference when ten is subtracted from a number q



"Just a darn minute! — Yesterday you said that X equals two!"

1-2 Skills Practice**Variables and Expressions****ALGEBRA** Translate each phrase into an algebraic expression.

1. two inches shorter than Kathryn's height
2. the quotient of some number and thirteen
3. some number added to seventeen
4. six centimeters shorter than the length of the pencil
5. three pounds lighter than Adlai's weight
6. the difference of some number and eighteen
7. three dollars more than the cost of a ticket
8. eight more than the product of a number and four
9. half as many pieces of candy
10. twice as long as the length of the string

ALGEBRA Evaluate each expression if $x = 4$, $y = 6$, and $z = 3$.

- | | |
|-----------------|------------------|
| 11. $x + y + z$ | 12. $3x + y$ |
| 13. $x - z$ | 14. $x + y - 3z$ |
| 15. $15z$ | 16. $3(x + z)$ |
| 17. $xz \div y$ | 18. $yz - x$ |

ALGEBRA Evaluate each expression if $a = 7$, $b = 9$, $c = 2$, and $d = 5$.

- | | |
|-----------------------------|------------------------|
| 19. $a + b + c$ | 20. $a + b - (c + d)$ |
| 21. $3a + 4d$ | 22. bcd |
| 23. $(a + b) \cdot (c + d)$ | 24. $c(4 + d)$ |
| 25. $\frac{b}{a + c}$ | 26. $a + b - 3c$ |
| 27. $ab - cd$ | 28. $\frac{bc}{a - d}$ |

1-2 Practice**Variables and Expressions****ALGEBRA** Translate each phrase into an algebraic expression.

- six times a number minus eleven
- the product of eight hundred and a number
- the quotient of thirty and the product of ten times a number
- five times the sum of three and some number
- half the distance to the school

ALGEBRA Evaluate each expression if $x = 12$, $y = 20$, and $z = 4$.

- | | |
|-------------------------|---------------------------------|
| 6. $x + y + z$ | 7. $4x - y$ |
| 8. $3x + 2y$ | 9. $y - 3z$ |
| 10. $x + y \div z$ | 11. $yz + x$ |
| 12. $(y - x) + (y - z)$ | 13. $\frac{y}{x} + \frac{x}{y}$ |
| 14. $\frac{5x}{3y}$ | 15. $z(y - x) + 4z$ |

ALGEBRA Evaluate each expression if $a = 3$, $b = 6$, $c = 5$, and $d = 9$.

- | | |
|---------------------------------|-----------------------------|
| 16. $a + b + c + d$ | 17. $\frac{(a + b + c)}{2}$ |
| 18. $ab + bc$ | 19. $6d - c \cdot c$ |
| 20. $3(a + b + c)$ | 21. $\frac{100}{5c}$ |
| 22. abc | 23. $10(6c - 3d)$ |
| 24. $\frac{2(a + b)}{6(b - c)}$ | 25. $4[(d - a) + c]$ |

26. RECYCLING In order to encourage recycling, the city is offering five cents for every pound of newspapers collected, twenty-five cents per pound for cans, and ten cents per pound for glass bottles or jars.

- Write an expression for the total amount earned from recycling.
- If Chen brings in ten pounds of newspapers, eight pounds of cans, and two pounds of glass, how much will he receive?

1-3 Study Guide and Intervention

Properties

Properties of Addition and Multiplication In algebra, there are certain statements called **properties** that are true for any numbers.

Property	Explanations	Example
Commutative Property of Addition	$a + b = b + a$	$6 + 3 = 3 + 6$ $9 = 9$
Commutative Property of Multiplication	$a \cdot b = b \cdot a$	$4 \cdot 5 = 5 \cdot 4$ $20 = 20$
Associative Property of Addition	$(a + b) + c = a + (b + c)$	$(3 + 4) + 7 = 3 + (4 + 7)$ $14 = 14$
Associative Property of Multiplication	$(a \cdot b) \cdot c = a \cdot (b \cdot c)$	$(2 \cdot 5) \cdot 8 = 2 \cdot (5 \cdot 8)$ $80 = 80$
Additive Identity	$a + 0 = 0 + a = a$	$10 + 0 = 0 + 10 = 10$
Multiplicative Identity	$a \cdot 1 = 1 \cdot a = a$	$5 \cdot 1 = 1 \cdot 5 = 5$
Multiplicative Property of Zero	$a \cdot 0 = 0 \cdot a = 0$	$15 \cdot 0 = 0 \cdot 15 = 0$

Example 1 Is subtraction of whole numbers associative? If not, give a counterexample.

$(9 - 4) - 2 \stackrel{?}{=} 9 - (4 - 2)$	State the conjecture.
$5 - 2 \stackrel{?}{=} 9 - 2$	Simplify.
$3 \stackrel{?}{=} 7$	Simplify.

This is a counterexample. So, subtraction of whole numbers is not associative.

Example 2 Name the property shown by the statement.

$15 \times b = b \times 15$	The order of the numbers and variables changed. This is the Commutative Property of Multiplication.
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Exercises

- State whether the following conjecture is true or false: The multiplicative identity applies to division also. If false, give a counterexample.

Name the property shown by each statement.

- | | |
|------------------------|--|
| 2. $75 + 25 = 25 + 75$ | 3. $2 \cdot (3 \cdot 4) = (2 \cdot 3) \cdot 4$ |
| 4. $14 \cdot 1 = 14$ | 5. $p \cdot 0 = 0$ |

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WS "Stilwell Practice 1-3"

For questions 1-15, name the property using the list below:

Identity of Addition (IA)

Commutative of Addition (CA)

Associative of Addition (AA)

Identify of Multiplication (IM)

Commutative of Multiplication (CM)

Associative of Multiplication (AM)

- _____ 1) $19 \times 1 = 19$
_____ 2) $(9 + 1) + 3 = 9 + (1 + 3)$
_____ 3) $(2 \times 1) \times 3 = 2 \times (1 \times 3)$
_____ 4) $16 + 4 = 4 + 16$
_____ 5) $9 \times 11 = 11 \times 9$
_____ 6) $40 + 0 = 40$
_____ 7) $8 + (4 + 5) = (8 + 4) + 5$
_____ 8) $(8 \times 4) \times 3 = 8 \times (4 \times 3)$
_____ 9) $a + (3 + 4) = (a + 3) + 4$
_____ 10) $5 \times b = b \times 5$
_____ 11) $(rs)t = r(st)$
_____ 12) $(r + s) + t = r + (s + t)$
_____ 13) $t + m = m + t$
_____ 14) $m + 0 = m$
_____ 15) $b \times 1 = b$

For questions 16-27, supply the missing number or variable:

- 16) $7 + 4 = 4 + \underline{\hspace{1cm}}$
17) $(6 + 7) + 4 = 6 + (\underline{\hspace{1cm}} + 4)$
18) $0 + 8 = \underline{\hspace{1cm}}$
19) $5 \times 7 = 7 \times \underline{\hspace{1cm}}$
20) $3 + (5 + 1) = (3 + 5) + \underline{\hspace{1cm}}$
21) $1 \times \underline{\hspace{1cm}} = 19$
22) $16 + 4 = \underline{\hspace{1cm}} + 16$
23) $(2 \times 1) \times 3 = \underline{\hspace{1cm}} \times (1 \times 3)$
24) $(3 + 8) + 6 = \underline{\hspace{1cm}} + (8 + 6)$
25) $6 + y = \underline{\hspace{1cm}} + 6$
26) $\underline{\hspace{1cm}} \times 38 = 38 \times 10$
27) $9 \times (20 \times \underline{\hspace{1cm}}) = (9 \times 20) \times 6$

OVER 

For questions 28-44, name the property using the list below:

Identity of Addition (IA)

Commutative of Addition (CA)

Associative of Addition (AA)

Identify of Multiplication (IM)

Commutative of Multiplication (CM)

Associative of Multiplication (AM)

- _____ 28) $5 + 6 = 6 + 5$
_____ 29) $2 + (1 + 4) = (2 + 1) + 4$
_____ 30) $75 \cdot 43 = 43 \cdot 75$
_____ 31) $2,985 + 0 = 2,985$
_____ 32) $N + 81 = 81 + N$
_____ 33) $M + (K + L) = (M + K) + L$
_____ 34) $55 \cdot x = x \cdot 55$
_____ 35) $T = 1 \cdot T$
_____ 36) $K \cdot (9 \cdot M) = (K \cdot 9) \cdot M$
_____ 37) $6 \cdot 1 = 6$
_____ 38) $(12 \cdot 8) \cdot 65 = 12 \cdot (8 \cdot 65)$
_____ 39) $k + 0 = k$
_____ 40) $y \cdot 1 = y$
_____ 41) $A + B = B + A$
_____ 42) $8 \cdot (6 + B) = (6 + B) \cdot 8$
_____ 43) $200,101 = 200,101 + 0$
_____ 44) $9 + (6 + 1) = (1 + 9) + 6$

For questions 45-58, supply the missing number or variable:

- 45) $56 + 43 = \underline{\quad} + 56$ 52) $(25 \cdot 93) \cdot 4 = \underline{\quad}$
46) $\underline{\quad} \cdot 98 = 98 \cdot 14$ 53) $(87 + 42) + 90 = 87 + (\underline{\quad} + 90)$
47) $123 + \underline{\quad} = 123$ 54) $(5 - 4) \cdot 5,648 = \underline{\quad}$
48) $\underline{\quad} = 407 + 0$ 55) $717 = \underline{\quad} \cdot 717$
49) $999 + (78 + 1) = \underline{\quad} + 1,000$ 56) $(4 \cdot 31) \cdot 25 = 31 \cdot \underline{\quad}$
50) $4 + (78 + 96) = \underline{\quad}$ 57) $(888 + 597) + 112 = 1,000 + \underline{\quad}$
51) $101 + (67 + 99) = 200 + \underline{\quad}$ 58) $9 \times (20 \times \underline{\quad}) = (9 \times 20) \times 6$

Name _____ Date _____ Pd _____

Chapter 1 Bringing It All Together #1

(Words & Expressions, Variables and Expressions, Properties)

Vocabulary Check

Define the following vocabulary words:

1) Properties: _____

2) Order of Operations: _____

State whether the statement is *true* or *false*.

If *false*, replace the underlined word or number to make a true sentence.

3) An example of a(n) algebraic expression is $a + 2c + 6$ _____

4) A variable is a letter used to represent a value. _____

5) To find the value of a number expression, you simplify it. _____

6) A variable is a number used to represent a value. _____

7) A numerical expression contains a combination of numbers and operations. _____

8) Mathematicians agreed on an order of operations so that numerical expressions would have only one value. _____

1-1 Words and Expressions (pp. 5-9)

Evaluate each expression. Show your work ☺

9) $24 - 8 + 3^2$

10) $4[(12 - 4) + 2]$

11) $9 + \frac{3(7 - 5)^3}{6(2)}$

12) $15 + 9 \div 3 - 7$

13) $48 \div 6 + 2 \times 5$

14) $\frac{6 \times 4 \div 8}{2 + 1} + \frac{2(9 - 5)}{5 - 3} - \frac{6(5)}{(5)3}$

OVER →

