

Use when you get it right all by yourself
S Use when you did it all by yourself, but made a silly mistake
H Use when you could do it alone with a little help from teacher or peer
G Use when you completed the problem in a group
X Use when a question was attempted but wrong (get help)
N Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Simplifying Algebraic Expressions	1, 2, 3	3, 4, 5	6
Coefficient	1		
Like & Unlike Terms	2		
CLT/Simplifying	3		
Distributive Property	4	4	
Writing Algebraic Expressions	9	5	6
Addition Property of Equality (POE)	7, 8	8	16
Multiplication Property of Equality (POE)	7, 8	8	16
Real-World Application/Word Problems		10	
Consecutive Integers		11	
Solving Linear Equations	12	12	12
Checking Linear Equations	12	15	
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2.1 Simplifying Algebraic Expressions

1. Identify the numerical coefficient of each term.

- a) $-7y$ **-7** b) $3x$ **3** c) $17x^2y$ **17** d) $1.2xy$ **1.2**

2. Determine which terms in each list are like or unlike.

- a) $-2x^2y, 6xy$ **unlike** b) $ab^2, -7ab^2$ **like** c) $7.4p^3q^2, 6.2p^3q^2r$ **unlike**

3. Simplify each expression by combining any like terms.

- a) $7y + 8y$ **15y** b) $8x^3 + x^3 - 11x^3$ **$-2x^3$** c) $3b - 5 - 10b - 4$ **$-7b - 9$**
- d) $m - 4m + 2m - 6$ **$-m - 6$** e) $8p + 4 - 8p - 15$ **-11** f) $6x + 0.5 - 4.3x - 0.4x + 3$ **$1.3x + 3.5$**

4. Simplify each expression. First use the distributive property to remove any parentheses.

a) $7(r-3)$

$7r-21$

b) $-(b+7)-15$

$-b-22$

c) $-2(4x-3w-1)$

$-8x+6w+2$

d) $4(2x-3)-2(x+1)$

$6x-14$

5. Write each of the following as an algebraic expression. Simplify if possible.

a) Subtract $m-3$ from $2m-6$

$m-3$

b) Add $4q-7$ to $q+10$

$5q+3$

6. Write each phrase as an algebraic expression and simplify if possible. Let x represent the unknown number.

a) The difference of a number and two, divided by five

$\frac{x-2}{5}$

b) Eight more than triple a number

$3x+8$

c) Eleven, increased by two-thirds of a number

$11 + \frac{2}{3}x$

d) The sum of three times a number and 10, subtracted from nine times the number

$6x-10$

e) Six times the difference of a number and five

$6x-30$

f) Half a number, minus the product of the number and eight

$-\frac{15}{2}x$

g) The sum of twice a number, -1, five times the number, and -12

$7x-13$

2.2 The Addition & Multiplication Properties of Equality

7. Solve each equation. Check each solution.

a) $x+14=25$

$x=11$

b) $y-9.2=-6.8$

$y=2.4$

c) $9m+5.5=10m$

$m=5.5$

d) $18p-9=19p$

$p=-9$

8. Solve each equation. Checking is great, but optional for these.

a) $7y+2=2y+4y+2$

$y=0$

b) $4c+8-c=8+2c$

$c=0$

c) $10=8(3v-4)-23v+20$

$v=22$

d) $-2x=0$

$x=0$

e) $-k=7$

$k=-7$

f) $-g+4g=33$

$g=11$

g) $\frac{3}{4}n=-15$

$n=-20$

h) $\frac{1}{8}v=\frac{1}{4}$

$v=2$

i) $\frac{d}{15}=2$

$d=30$

j) $\frac{f}{-5}=0$

$f=0$

9. Two numbers have a sum of 13. If one number is y , express the other number in terms of y .

$$13 - y$$

10. The Missouri River is the longest river in the United States. The Mississippi River is 200 miles shorter than the Missouri River. If the length of the Missouri River is r miles, express the length of the Mississippi River as an algebraic expression in r .

$$r - 200$$

11. Write each algebraic expression described. Simplify if possible.

a) If x is the first of four consecutive even integers, write their sum as an algebraic expression in x .

$$4x + 12$$

b) If x is the first of two consecutive integers, express the sum of 20 and the second consecutive integer as an algebraic expression containing the variable x .

$$x + 21$$

2.3 Solving Linear Equations

12. Solve each equation. Then check on your calculator and write what you get for each side after substituting in your solution to prove your answer is correct.

a) $-4y + 10 = -2(3y + 1)$

$$y = -6$$

b) $-2(3x - 4) = 2x$

$$x = 1$$

c) $-4(n - 4) - 23 = -7$

$$n = 0$$

d) $6y - 8 = -6 + 3y + 13$

$$y = 5$$

e) $\frac{2}{3}x + \frac{4}{3} = -\frac{2}{3}$

$$x = -3$$

f) $\frac{3}{4}x - \frac{1}{2} = 1$

$$x = 2$$

g) $0.40x + 0.06(30) = 9.8$

$$x = 20$$

h) $x + \frac{7}{6} = 2x - \frac{7}{6}$

$$x = \frac{7}{3}$$

i) $\frac{x}{3} - 2 = \frac{x}{3}$

$$\emptyset$$

j) $0.60(d - 300) + 0.05d = 0.70d - 205$

$$d = 500$$

k) $4(3x + 2) = 12x + 8$

$$\mathbb{R}$$

Spiral Review

13. If $a = 2$ and $b = -5$, find $a - b^2$.

-23

14. Insert $<$, $>$, or $=$ in the appropriate space to make each statement true.

a. $(-3)^2 > -3^2$ b. $(-2)^4 > -2^4$ c. $(-2)^3 = -2^3$

15. Use a calculator to determine whether the given value is a solution of the given equation.

$3(a + 4.6) = 5a + 2.5$; $a = 6.3$

not a solution
 $32.7 \neq 34$

16. Solve each equation. Use your calculator to avoid making careless mistakes.

a. $-3.6x = 10.62$ b. $4.95y = -31.185$ c. $7x - 5.06 = -4.92$

$x = -2.95$

$y = -6.3$

$x = 0.02$

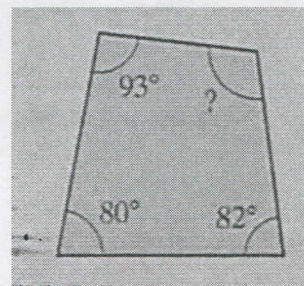
17. The opposite of -7 is 7.

18. The reciprocal of -3 is $-\frac{1}{3}$ and $\frac{2}{3}$ is $\frac{3}{2}$.

19. An example of the commutative property is $2+3=3+2$; $2(3)=3(2)$ while the associative property example would be $2+(3+4) = (2+3)+4$ or $2(3 \cdot 4) = (2 \cdot 3)(4)$

20. The expression $360 - a - b - c$ represents the measure of the unknown angle of the given quadrilateral. Replace a with 93 , b with 80 , and c with 82 to find the measure of the unknown angle.

$360 - (93) - (80) - (82) = ?$
 $105^\circ = ?$



CYU Reflection: How far can you go: basic, intermediate, or advanced?

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

