

Algebra 1 - Structure of Algebraic Expressions - Answer Key

Common Core A-SSE.A.1a, A-SSE.A.1b · maths-pdf.fr/en/

Use this key to check your work on the expressions worksheet. Every solution shows the steps, and the final answer appears in bold. If your answer differs, find the first line where your work and the key disagree, then redo the problem from there without looking.

Algebra 1 · Common Core State Standards: **A-SSE.A.1a, A-SSE.A.1b**

Exercise 1 - Coefficient of x

The term with x is $6x$, so the number multiplying x is 6.

6

Exercise 2 - Count the terms

Terms are separated by $+$ and $-$ signs: $4x^2$, $-3x$, and 8.

3 terms

Exercise 3 - Name the constant

The constant term has no variable. In $2x^2 - 9x + 14$ it is the last term.

14

Exercise 4 - Factors in a product

A product is made of factors that are multiplied. Here 5 is multiplied by the group $(x-2)$.

5 and $(x-2)$

Exercise 5 - Evaluate an expression

Substitute -2 for x : $3(-2)^2 - 2(-2) + 5$.

Square first: $3(4)+4+5=12+4+5$.

21

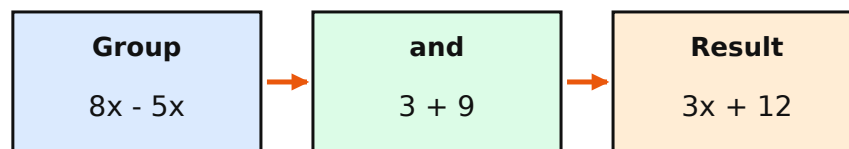
Exercise 6 - Pick the like terms

Like terms have the same variable part. $5x$ and $-2x$ both have x to the first power.

$4x^2$ has a different exponent, and $3y$ has a different variable.

$5x$ and $-2x$

Exercise 7 - Combine like terms



Like terms are combined separately.

Group like terms: $(8x-5x)+(3+9)$.

Combine: $3x+12$.

$3x+12$

Exercise 8 - Distribute a number

Multiply 4 by each term inside: $4 \cdot 3x = 12x$ and $4 \cdot (-5) = -20$.

$12x-20$

Exercise 9 - Distribute a negative

Multiply each term by -2 : $(-2)(x) = -2x$ and $(-2)(-6) = +12$.

$-2x+12$

Exercise 10 - Distribute and combine

Distribute: $6x+3+4x-7$.

Combine like terms: $(6x+4x)+(3-7)$.

$$10x-4$$

Exercise 11 - Subtract an expression

Subtracting changes the sign of every term in the second group: $7x+5-3x+2$.

Combine: $(7x-3x)+(5+2)$.

$$4x+7$$

Exercise 12 - One quantity

Both terms contain the factor $(x-3)$. Add the coefficients: $2+5=7$.

$$7(x-3)$$

Exercise 13 - Taxi fare meaning

2.25 is the coefficient of m : the cost for each mile. The table shows it, since the fare rises \$2.25 per mile ($\$5.75 \rightarrow \$8.00$).

3.50 is the constant: a fixed charge paid before any miles.

\$2.25 per mile; \$3.50 starting charge

Exercise 14 - Write an expression

3 times a number is $3n$. Taking away 5 gives $3n-5$.

$$3n-5$$

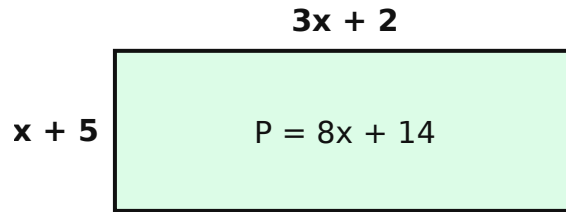
Exercise 15 - Gym membership

Rate \$18 per month times m months, plus the one-time fee: $18m+25$.

Substitute $m=6$: $18(6)+25=108+25=133$.

$$18m+25; \text{ \$133}$$

Exercise 16 - Perimeter



Perimeter of the garden.

Perimeter is $2(3x+2)+2(x+5)$.

Distribute: $6x+4+2x+10$, which simplifies to $8x+14$.

For $x = 4$: $8(4)+14 = 46$ feet.

$8x+14$; **46 feet**

Exercise 17 - Bake sale

Money is $1.50c+2.25b$.

For $c = 24$ and $b = 18$: $1.50(24)+2.25(18) = 36+40.50 = 76.50$.

The term $2.25b$ is the money earned from brownies alone.

$1.50c+2.25b$; **\$76.50**

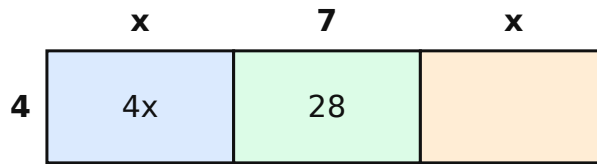
Exercise 18 - Sale price

$0.85p$ is 0.85 times p . Paying 85% of the price means a 15% discount, and the 4 is a shipping charge.

For $p = 60$: $0.85(60)+4 = 51+4 = 55$.

15% discount; \$55

Exercise 19 - Patio area



Garden parts $4x$ and 28 ; patio x^2 .

Garden area: $4(x+7) = 4x+28$. Patio area: $x \cdot x = x^2$.

Total: $x^2+4x+28$.

For $x=5$: $25+20+28=73$.

$x^2+4x+28$; **73 square feet**

Exercise 20 - Compare two plans

$(4+2.5m)-(1.5+3m) = 4+2.5m-1.5-3m$.

Combine like terms: $2.5-0.5m$.

For $m=3$: $2.5-0.5(3) = 2.5-1.5 = 1$, so A costs \$1 more.

$2.5-0.5m$; **\$1**

Exercise 21 - Fundraiser tickets

Distribute: $3(2s+3a) = 6s+9a$, so the expressions are equivalent.

Substitute: $6(40)+9(25) = 240+225 = 465$.

Equivalent; \$465