iMathMentor

For Academic Guidance

Mastering Algebraic Expressions: Practice for Success

(Grades 7–8)

Algebra is the gateway to higher mathematics—and it all begins with mastering algebraic expressions. This free 22-page practice booklet is designed to help students in Levels 7 and 8 build confidence, sharpen their problem-solving skills, and strengthen their foundation for advanced topics. By practicing consistently, learners not only improve their accuracy but also develop logical thinking and a deeper understanding of how mathematics connects to real life. Mastering algebraic expressions is not just about solving problems—it's about unlocking the skills needed for future success in math and beyond.

Practice is the key that unlocks confidence.

Write a verbal expression for each algebraic expression.

1) $9a^2$

2) 5^2

3) $c+2d$

4) $4-5h$

5) $7x^3-1$

6) p^4+6r

Write a verbal expression for each algebraic expression.

7) $23f$

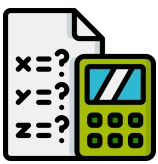
8) 7^3

9) $5m^2 + 2$

10) $4d^3 - 10$

11) $x^3 \cdot y^4$

12) $b^2 - 3c^3$



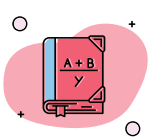
Write a verbal expression for each algebraic expression.

13) $\frac{k^5}{6}$

14) $\frac{4n^2}{7}$

15) $3n-x$

16) $2b^2$



Write an algebraic expression for each verbal expression.

17) the sum of a number and 10

18) 15 less than k

19) the product of 18 and q

20) the product of 18 and q

21) 6 more than twice m

22) the difference of 17 and 5 times a number

23) the product of 2 and the second power of y

24) 9 less than g to the fourth power

Write an algebraic expression for each verbal expression.

25) 8 increased by three times a number

26) the difference of 10 and u

27) the sum of 18 and a number

28) the product of 33 and j

29) 74 increased by 3 times y

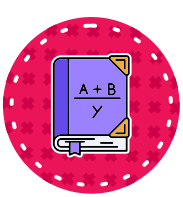
30) 15 decreased by twice a number

31) 91 more than the square of a number

32) 9 less than g to the fourth power

33) **BOOKS** A used bookstore sells paperback fiction books in excellent condition for \$2.50 and in fair condition for \$0.50. Write an expression for the cost of buying x excellent-condition paperbacks and f fair-condition paperbacks.

34) **GEOMETRY** The surface area of the side of a right cylinder can be found by multiplying twice the number π by the radius times the height. If a circular cylinder has radius r and height h, write an expression that represents the surface area of its side.



Evaluate each expression.

1) $23(3 + 5) \cdot 5 + 1$

2) $7^3 + 4(3 + 1)$

3) $30 - 5 \cdot 4 + 2$

4) $10 + 2 \cdot 6 + 4$

Evaluate each expression.

5) $2[12 + (5 - 2)^2]$

6) $5 + [30 - (6 - 1)^2]$

7) $4[30 - (10 - 2)\ 3]$

8) $14 \div 7 \bullet 5 - 3^2$

Evaluate each expression if x = 6, y = 8, and z = 3.

9) $2x + 3y - z$

10) $2(x + z) - y$

11) $5z + (y - x)$

12) $5x - (y + 2z)$

Evaluate each expression if x = 6, y = 8, and z = 3.

13) $x^2 + y^2 - 10z$

14) $z^3 + (y^2 - 4x)$

15) $\frac{y+x^2}{2}$

16) $\frac{3y+x^2}{2}$

Evaluate each expression if x = 6, y = 8, and z = 3.

17) $162 \div [6(7 - 4)^2]$

18) $\dfrac{5^2 \cdot 4 - 5 \cdot 4^2}{5(4)}$

19) $\dfrac{(2 \cdot 5)^2 + 4}{3^2 - 5}$

20) $\dfrac{7+3^2}{4^2 \cdot 2}$

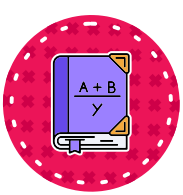
Evaluate each expression if a = 12, b = 9, and c = 4.

21) $a^2 + b - c^2$

22) $(a^2 \div 4b) + c$

23) $c^2 \cdot (2b - a)$

24) 4a + 2b - c2



Evaluate each expression if a = 12, b = 9, and c = 4.

25) $\frac{bc^2+9}{c}$

26) $\frac{2c^3-ab}{4}$

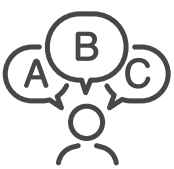
27) $2(a - b)^2 - 5c$

28) $\frac{b^2-2c^2}{a+c-b}$

29) **CAR RENTAL** Ann Carlyle is planning a business trip for which she needs to rent a car. The car rental company charges $36 per day plus $0.50 per mile over 100 miles. Suppose Ms. Carlyle rents the car for 5 days and drives 180 miles.

a. Write an expression for how much it will cost Ms. Carlyle to rent the car.

b. Evaluate the expression to determine how much Ms. Carlyle must pay the car rental company.



30) **GEOMETRY** The length of a rectangle is $3n + 2$ and its width is $n - 1$. The perimeter of the rectangle is twice the sum of its length and its width.

a. Write an expression that represents the perimeter of the rectangle.

b. Find the perimeter of the rectangle when $n = 4$ inches.

Simplify each expression. If not possible, write simplified .

1) 13r + 5r

2) 3x3 - 2x2

3) 7m + 7 - 5m

4) 5z2 + 3z + 8z2

5) 3m + 5g + 6g + 11m

6) 4a + 5a2 + 2a2 + a2

7) 6x2 + 14x - 9x

8) 5k + 3k2 + 7k + 9k3

9) 3q2 + q - q2

Write an algebraic expression for each verbal expression. Then simplify, indicating the properties used.

10) The product of 9 and t squared, increased by the sum of the square of t and 2

11) 3 times the sum of r and d squared minus 2 times the sum of r and d squared

12) 4 times the difference of f squared and g, increased by the sum of f squared and 2g

13) 3 times the sum of x and y squared plus 5 times the difference of 2x and y

DINING OUT The Ross family recently dined at an Italian restaurant. Each of the four family members ordered a pasta dish that cost $11.50, a drink that cost $1.50, and dessert that cost $2.75.

a. Write an expression that could be used to calculate the cost of the Ross' dinner before adding tax and a tip.

b. What was the cost of dining out for the Ross family?

Mixed Exercises

1) Five more than twice a number x

2) The difference between 7 and the product of a number and 4

3) A number y decreased by the square of 3

4) The sum of 3x and 2y squared

5) The quotient of 8x and 2

6) Ten less than the product of a number and 6

7) A number increased by 3, then multiplied by 2

8) The square of a number minus 5 times the number

9) The sum of a number and its reciprocal

10) Three times the square of the difference of x and 1

11) 4a - 2b + 3c, evaluate when a = 2, b = -1, c = 5

12) (x + y)^2 - 4xy, evaluate when x = 3 and y = 4

13) (a - b)^2 + 2ab, simplify and evaluate for a = 6, b = 2

14) The volume of a box is l × w × h. Write and evaluate an expression for volume if l = x + 1, w = 2x, h = x - 1 when x = 3

15) Geometry: A triangle has base b = 3x and height h = x + 2. Write and simplify the area formula A = 1/2 × b × h

16) A number y squared, then add 6 and divide the result by 3

17) The cube of a number m, then subtract the square of m

18) The average of 3 numbers: x, 2x + 1, and x - 2

19) Simplify: 2x + 3 - (x - 4) + 2(x + 5)

20) Write an expression for the perimeter of a square with side length (2x + 1)

You have completed Algebraic Expressions exercises!



Congratulations



Way to go





For more resources, visit www.imathmentor.com

For math tutorial help and other questions, please send your email to: admin@imathmentor.com

or

Send your message to our WhatsApp +974-30135176

Follow us for math tutorials and math mindset/tips,hacks

@imathmentor

@imathmentor.gcc

FB PAGE: i.Math Mentor Tutorials