



**THIRD SPACE
LEARNING**

Polynomials Worksheet

Algebra

Grades 9-12

Skill Questions

Name:

Date:

- 1 Identify the degree of the polynomial $3x^4 - 2x^3 + 5x^2 - 7$.

Answer

- 2 Simplify the expression $2x^3 + 4x^2 - 3x^3 + x^2$.

Answer

- 3 Determine the leading term in the polynomial $6y^2 - 3y + 4y^3 - 2$.

Answer

- 4 Factor the polynomial $x^2 - 4$.

Answer

- 5 Add the polynomials $3a^2 - 5a + 2$ and $4a^2 + 7a - 1$.

Answer

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6 Write the polynomial $5b - 2b^2 + 3$ in standard form.

Answer

7 Multiply the polynomials $2c + 3$ and $c - 1$.

Answer

8 Identify the constant term in the polynomial $4x^2 - 6x + 9$.

Answer

9 Subtract the polynomial $2y^3 - 3y^2 + 7$ from $y^3 + 4y^2 - 1$.

Answer

10 Solve the equation $x^2 - 9 = 0$ by factoring.

Answer

Applied Questions

- 11** Sarah is designing a rectangular garden with length $2x$ and width $3x - 1$. Write an expression for the area of the garden and simplify it.

Answer



- 12** A company sells 5 products, each represented by the polynomial $3y^2 + 2y - 1$. Write an expression for the total revenue when x products are sold.

Answer



- 13** The perimeter of a rectangular field is $8x + 6$. If the length of the field is $2x - 1$, write an expression for the width and simplify it.

Answer



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- 14 A polynomial $ax^2 + bx + c$ represents the profit function for a business. If $a = 2$, $b = -3$, and $c = 7$, find the value of the polynomial when $x = 4$.

Answer

- 15 Mark is organizing a fundraising event where 3 different activities generate the following polynomials: $4p^2 - 2p + 5$, $3p - 1$, and $2p^2 + 3$. Write an expression for the total funds raised when p participants join all three activities.

Answer

Answers

Question number	Question	Answers	Standard
1	Identify the degree of the polynomial $3x^4 - 2x^3 + 5x^2 - 7$.	4	HSA.APR. A.1
2	Simplify the expression $2x^3 + 4x^2 - 3x^3 + x^2$.	$-x^3 + 5x^2$	HSA.APR. A.1
3	Determine the leading term in the polynomial $6y^2 - 3y + 4y^3 - 2$.	$4y^3$	HSA.APR. A.1
4	Factor the polynomial $x^2 - 4$.	$(x-2)(x+2)$	HSA.APR. A.1
5	Add the polynomials $3a^2 - 5a + 2$ and $4a^2 + 7a - 1$.	$7a^2 + 2a + 1$	HSA.APR. A.1
6	Write the polynomial $5b - 2b^2 + 3$ in standard form.	$-2b^2 + 5b + 3$	HSA.APR. A.1
7	Multiply the polynomials $2c + 3$ and $c - 1$.	$2c^2 + c - 3$	HSA.APR. A.1
8	Identify the constant term in the polynomial $4x^2 - 6x + 9$.	9	HSA.APR. A.1
9	Subtract the polynomial $2y^3 - 3y^2 + 7$ from $y^3 + 4y^2 - 1$.	$-y^3 + 7y^2 - 8$	HSA.APR. A.1
10	Solve the equation $x^2 - 9 = 0$ by factoring.	$x = -3, 3$	HSA.APR. A.1

Polynomials Worksheet | Grades 9-12 | Answers




Question number	Question	Answers	Standard
11	Sarah is designing a rectangular garden with length $2x$ and width $3x - 1$. Write an expression for the area of the garden and simplify it.	Area expression: $2x(3x - 1)$ Simplified: $6x^2 - 2x$	HSA.APR. A.1
12	A company sells 5 products, each represented by the polynomial $3y^2 + 2y - 1$. Write an expression for the total revenue when x products are sold.	Revenue expression: $5(3y^2 + 2y - 1)$ Simplified expression: $15y^2 + 10y - 5$	HSA.APR. A.1
13	The perimeter of a rectangular field is $8x + 6$. If the length of the field is $2x - 1$, write an expression for the width and simplify it.	Width: $(8x + 6)/2 - (2x - 1)$ Simplified expression: $2x + 4$	HSA.APR. A.1
14	A polynomial $ax^2 + bx + c$ represents the profit function for a business. If $a = 2$, $b = -3$, and $c = 7$, find the value of the polynomial when $x = 4$.	Profit: $2x^2 - 3x + 7$ When $x = 4$ the polynomial = 27	HSA.APR. A.1
15	Mark is organizing a fundraising event where 3 different activities generate the following polynomials: $4p^2 - 2p + 5$, $3p - 1$, and $2p^2 + 3$. Write an expression for the total funds raised when p participants join all three activities.	Total funds: $4p^2 - 2p + 5 + 3p - 1 + 2p^2 + 3$ Simplified expression: $6p^2 + p + 7$	HSA.APR. A.1

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