Think Academy

Polynomials Practices

1 Write each phrase as an algebraic expression.

(1) 5 less than the 4 times of number x: _____ .

(2) 3 times the sum of 7 and number y: _____ .

2 Simplify and evaluate the polynomials using the given value.

(1) $4x+3y-x+1; x=1, y=2$

(2) $-5a+3a-b-4;\ a=-4, b=-3$

3 Simplify and evaluate the polynomials using the given value.

(1) $z^2+4y^2-3y^2+5z;\ z=4, y=2$

(2) $xy^2-3x^2y-2xy^2+4x^2y;\ x=1, y=-1$

4 Simplify and evaluate the polynomials using the given value.

(1) $-a+2bc+3a-3bc-2c; a=1, b=2, c=3$

(2) $4xy+3z-2xy+z; x=2, y=3, z=4$

5 Simplify:

$(3a^2 - 2ab + b^2) - (2a^2 - ab + 2b^2) =$ _____ .

6 Simplify:

$2(a^2 + 3ab - 2b^2) - (2a^2 + 5ab - 4b^2) =$ _____ .

7 Find the product, and write the answer in the standard form.

$(2x+3)(4x-5) =$ _____ .

$(4x-2)(8x-7) =$ _____ .

8 Find the product.

$(x+2)(y-3) =$ _____ .

$(x-5)(y+7) =$ _____ .

9 Calculate: $(2x^3y - 4x^2y^2 - 6xy) \div 2xy =$ _____ .

10 Expand $(5a^3 - 4a^2b + 7ab^2 - 3b^3)(2a^2 + 3ab - 3b^2)$, the coefficient of a^3b^2 is _____ .

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1 Write each phrase as an algebraic expression.

(1) 5 less than the 4 times of number x: _____ .

(2) 3 times the sum of 7 and number y: _____ .

Answer 1:$4x-5$

2:$3(7+y)$

Solution (1) $4x-5$

(2) $3(7+y)$

2 Simplify and evaluate the polynomials using the given value.

(1) $4x+3y-x+1; x=1, y=2$

(2) $-5a+3a-b-4;\ a=-4, b=-3$

Answer (1) 10

(2) 7

Solution (1) $4x+3y-x+1=3x+3y+1=3+6+1=10$

(2) $-5a+3a-b-4=-2a-b-4=8+3-4=7$

3 Simplify and evaluate the polynomials using the given value.

(1) $z^2+4y^2-3y^2+5z;\ z=4, y=2$

(2) $xy^2-3x^2y-2xy^2+4x^2y;\ x=1, y=-1$

Answer (1) 40

(2) -2

Solution (1) $z^2+4y^2-3y^2+5z=z^2+y^2+5z=16+4+20=40$

(2) $xy^2-3x^2y-2xy^2+4x^2y=x^2y-xy^2=-1-1=-2$

4 Simplify and evaluate the polynomials using the given value.

(1) $-a+2bc+3a-3bc-2c;a=1,b=2,c=3$

(2) $4xy+3z-2xy+z;x=2,y=3,z=4$

Answer (1) -10

(2) 28

Solution (1) $-a+2bc+3a-3bc-2c=2a-bc-2c=2-6-6=-10$

(2) $4xy+3z-2xy+z=2xy+4z=12+16=28$

5 Simplify:

$(3a^2-2ab+b^2)-(2a^2-ab+2b^2)=$ _____ .

Answer a^2-ab-b^2

Solution $(3a^2-2ab+b^2)-(2a^2-ab+2b^2)$

$=3a^2-2ab+b^2-2a^2+ab-2b^2$

$=a^2-ab-b^2$

6 Simplify:

$2(a^2+3ab-2b^2)-(2a^2+5ab-4b^2)=$ _____ .

Answer ab

Solution $2(a^2+3ab-2b^2)-(2a^2+5ab-4b^2)$

$=2a^2+6ab-4b^2-2a^2-5ab+4b^2$

$= ab$

7 Find the product, and write the answer in the standard form.

$(2x+3)(4x-5) =$ _____ .

$(4x-2)(8x-7) =$ _____ .

Answer 1:$8x^2+2x-15$

2:$32x^2-44x+14$

Solution (1) $8x^2-10x+12x-15=8x^2+2x-15$

(2) $32x^2-28x-16x+14=32x^2-44x+14$

8 Find the product.

$(x+2)(y-3) =$ _____ .

$(x-5)(y+7) =$ _____ .

Answer 1:$xy-3x+2y-6$

2:$xy+7x-5y-35$

Solution (1). $xy+2y-3x-6$

(2). $xy-5y+7x-35$

9 Calculate: $(2x^3y-4x^2y^2-6xy)\div 2xy =$ _____ .

Answer $x^2-2xy-3$

Solution 1. $2x^3y\div 2xy=x^2$

2. $-4x^2y^2\div 2xy=-2xy$

3. $-6xy\div 2xy=-3$

Answer : $x^2 - 2xy - 3$

10 Expand $(5a^3 - 4a^2b + 7ab^2 - 3b^3)(2a^2 + 3ab - 3b^2)$, the coefficient of a^3b^2 is _____ .

Answer -13

Solution In the expansion, a^3b^2 comes from:

(1). $5a^3 \cdot (-3b^2) = -15a^3b^2$

(2). $-4a^2b \cdot 3ab = -12a^3b^2$

(3). $7ab^2 \cdot 2a^2 = 14a^3b^2$

Adding them together, we have $-13a^3b^2$.