



Polynomials

1 Simplify by combining like terms.

$$-\frac{7}{2}x - \frac{1}{4}x^2 - \frac{5}{3}x^2 + 3$$

A

$$-\frac{23}{12}x^2 - \frac{7}{2}x + 3$$

B

$$-\frac{1}{4}x^2 - \frac{7}{2}x + 3$$

C

$$\frac{17}{12}x^2 - \frac{7}{2}x + 3$$

D

$$-\frac{1}{4}x^2 - \frac{5}{3}x^2 - \frac{7}{2}x + 3$$

4 Simplify by combining like terms.

$$-\frac{8}{3}x^2y^4 + \frac{7}{4}x^2y^3 + \frac{1}{2}x^2y^3 + \frac{3}{2}y^2 + 9y^3$$

A

$$-\frac{8}{3}x^2y^4 + \frac{5}{4}x^2y^3 + 9y^3 + \frac{3}{2}y^2$$

B

$$-\frac{8}{3}x^2y^4 + \frac{7}{4}x^2y^3 + 9y^3 + \frac{3}{2}y^2$$

C

$$-\frac{8}{3}x^2y^4 + \frac{9}{4}x^2y^3 + 9y^3 + \frac{3}{2}y^2$$

D

$$-\frac{8}{3}x^2y^4 + \frac{7}{4}x^2y^3 + \frac{1}{2}x^2y^3 + 9y^3 + \frac{3}{2}y^2$$

2 Simplify by combining like terms.

$$2x^2 - 3x - 5x^2 + 3$$

A

$$2x^2 - 5x^2 - 3x + 3$$

B

$$-3x^2 - 3x + 3$$

C

$$2x^2 - 3x + 3$$

D

$$7x^2 - 3x + 3$$

3 Simplify by combining like terms.

$$-7x^3 + 6x^2 + 9 - 6x + x^2$$

A

$$-7x^3 + 6x^2 - 6x + 9$$

B

$$-7x^3 + 7x^2 - 6x + 9$$

C

$$-7x^3 + 5x^2 - 6x + 9$$

D

$$-7x^3 + 6x^2 + x^2 - 6x + 9$$

5 Simplify by combining like terms.

$$-5x^2y^3 + 4x^3 + 8 + 9xy^3 + 5xy^3$$

A

$$-5x^2y^3 + 9xy^3 + 4x^3 + 8$$

B

$$-5x^2y^3 + 14xy^3 + 4x^3 + 8$$

C

$$-5x^2y^3 + 9xy^3 + 5xy^3 + 4x^3 + 8$$

D

$$-5x^2y^3 + 4xy^3 + 4x^3 + 8$$

6 Simplify by combining like terms.

$$9 - 8y - 6xy + 8xy + 5x$$

A

$$-14xy + 5x - 8y + 9$$

B

$$-6xy + 5x - 8y + 9$$

C

$$-6xy + 8xy + 5x - 8y + 9$$

D

$$2xy + 5x - 8y + 9$$



Polynomials

7 Simplify by combining like terms.

$$-4 + 5x - xy^2 + \frac{1}{2}x^2y - \frac{9}{2}x^2y$$

A $\frac{1}{2}x^2y - xy^2 + 5x - 4$

B $-4x^2y - xy^2 + 5x - 4$

C $\frac{1}{2}x^2y - \frac{9}{2}x^2y - xy^2 + 5x - 4$

D $5x^2y - xy^2 + 5x - 4$

8 Simplify by combining like terms.

$$5x + 9y + \frac{7}{2}xy + 8xy - \frac{5}{4}$$

A $-\frac{9}{2}xy + 5x + 9y - \frac{5}{4}$

B $\frac{7}{2}xy + 8xy + 5x + 9y - \frac{5}{4}$

C $\frac{7}{2}xy + 5x + 9y - \frac{5}{4}$

D $\frac{23}{2}xy + 5x + 9y - \frac{5}{4}$

9 Which answer is the same expression as this

$$(w - 4)(p + 7)$$

A $wp - 4p + 7w - 28$

B $11wp - 4p + 7w - 28$

10 Which answer is the same expression as this

$$(y + 5)(9x + 2)$$

A $5yx + 5x + 2y + 10$

B $yx + 2x + 10y + 5$

C $9yx + 45x + 2y + 5$

D $2yx + 5x + 2y + 10$

E $9yx + 10x + 2y + 5$

F $9yx + 45x + 2y + 10$

11 Which answer is the same expression as this

$$(w + 5)(z + 9)$$

A $wz + 5z + 9w + 17$

B $wz + 5z + 9w + 45$

12 Which answer is the same expression as this

$$(x + 6)(x - 4)$$

A $x^2 + 2x - 24$

B $24x^2 + 2x - 24$



Polynomials

13 Multiply and write the answer with like terms grouped.

$$3x(5x^3 + 4x^2 - 1)$$

A	$15x^4 + 12x^3 - 3x$
B	$15x^4 + 12x^3 + 3x$
C	$12x^3 - 3x$
D	$15x^3 + 12x^2 - 3$

14 Multiply and write the answer with like terms grouped.

$$8x^2y(4x^2y + 3xy^2 - xy)$$

A	$32x^4y^2 - 8x^3y^2$
B	$32x^2y + 24xy^2 - 8xy$
C	$32x^4y^2 + 24x^3y^3 + 8x^3y^2$
D	$32x^4y^2 + 24x^3y^3 - 8x^3y^2$

15 Which answer is the same expression as this

$$(q - 2)(q + 3)$$

A	$q^2 + 5q - 6$	B	$q^2 + 1q - 6$
C	$6q^2 - 5q + 8$	D	$q^2 + 6q - 6$
E	$q^2 + 6q + 5$		

16 What is the highest power and leading coefficient of this function?

$$f(x) = -5x^7 + 5x^6 + 5x^5$$

17 Multiply and write the answer with like terms grouped.

$$6x^3(-4x^4 + 6x^3 + 4x)$$

A	$24x^7 + 36x^6 + 24x^4$
B	$-24x^7 + 24x^4$
C	$-24x^7 + 36x^6 + 24x^4$
D	$-24x^4 + 36x^3 + 24x$



Polynomials

18 Multiply and write the answer with like terms grouped.

$$5x(7x^2 + 6x - 9)$$

A	$35x^3 + 30x^2 - 45x$
B	$30x^2 - 45x$
C	$35x^3 + 30x^2 + 45x$
D	$35x^2 + 30x - 45$

19 Simplify by combining like terms.

$$9xy^2 - x^2y^2 - 7x^2y^2 - 2x^2y + 9x^2$$

A	$-8x^2y^2 - 2x^2y + 9xy^2 + 9x^2$
B	$-x^2y^2 - 2x^2y + 9xy^2 + 9x^2$
C	$6x^2y^2 - 2x^2y + 9xy^2 + 9x^2$
D	$-x^2y^2 - 7x^2y^2 - 2x^2y + 9xy^2 + 9x^2$

20 Which answer is the same expression as this

$$(z - 7)(z + 4)$$

A	$z^2 - 28z - 28$
B	$z^2 - 3z - 28$

21 Which answer is the same expression as this

$$(w + 8)(3w + 3)$$

A	$w^2 + 24w - 27$	B	$w^2 + 27w - 24$
C	$3w^2 + 27w - 24$	D	$3w^2 + 24w - 27$
E	$w^2 + 24w + 27$	F	$3w^2 + 27w + 24$

22 Which answer is the same expression as this

$$15xz - 25x$$

A	$15z(x - 5)$	B	$25x(z - 5)$
C	$5x(3z - 5)$	D	$5x(z + 5)$
E	$5(x + z)$		

23 Which answer is the same expression as this

$$24x^2 - 56x$$

A	$7x - x$	B	$8x(3x - 7)$
C	$3x + x$	D	$3x - x$
E	$8(x + x)$		

24 Remove a common factor from this quadratic to make it easier to factor

$$8m^2 + 32m - 96$$

A	$8(m^2 + 4m - 12)$
B	$8(m^2 + 4m + 12)$



Polynomials

25 What does this expression simplify to?

$$\frac{m^{2011} + m^{2010}}{m^{2010}}$$

A

$$m + 1$$

B

$$(m + 1)^2$$

C

$$(m + 1)(m - 1)$$

D

$$m - 1$$

26 What is the coefficient of the x term in this polynomial?

$$-7x^2 + 6x - 8$$

A

5

B

6

C

4

D

-8

27 Which term has a coefficient of -5 in this polynomial?

$$-5x^3 - 3x^2 + 2x - 4$$

A

$$x^3$$

B

$$x$$

C

$$x^2$$

28 What is the constant term of this polynomial?

$$2x^3 - 3x^2 + 4$$

A

2

B

3

C

4

D

-3

29 Which pair of terms are like terms?

$$1 + 4x^2 - x - 6x$$

30 Multiply and write the answer with like terms grouped.

$$-3x^2(-4x^2y^3 - 7xy^2 + 4xy)$$

A

$$12x^2y^3 + 21xy^2 - 12xy$$

B

$$12x^4y^3 + 21x^3y^2$$

C

$$12x^4y^3 + 21x^3y^2 + 12x^3y$$

D

$$12x^4y^3 + 21x^3y^2 - 12x^3y$$



Polynomials

31 Multiply and write the answer with like terms grouped.

$$-x^4y(x^2y^4 - 5x^2y + 5y^3)$$

A	$-x^6y^5 + 5x^6y^2$
B	$x^6y^5 + 5x^6y^2 + 5x^4y^4$
C	$-x^2y^4 + 5x^2y - 5y^3$
D	$-x^6y^5 + 5x^6y^2 - 5x^4y^4$

32 Which answer is the same expression as this

$$(m + 8)(m + 8)$$

A	$m^2 + 64m - 16$
B	$m^2 + 16m + 64$

33 Which answer is the same expression as this

$$w^2 + 3w - 40$$

A	$(w - 5)(w + 8)$	B	$(w - 5)(w - 8)$
C	$(40w + 5)(w - 8)$	D	$(w + 5)(w + 8)$
E	$(40w - 5)(w + 8)$		

34 Which answer is the same expression as this

$$14m^2 + 39m + 10$$

A	$(7m - 5)(10m + 2)$	B	$(2m + 5)(7m + 2)$
C	$(2m + 5)(m + 2)$	D	$(m - 5)(39m + 2)$
E	$(10m - 5)(m + 2)$		

35 Which answer is the same expression as this

$$20t + 8$$

A	$4(t + 8)$	B	$2(4t - 2)$
C	$2(4t + 8)$	D	$4(5t + 2)$
E	$(t^4 + 8)$		

36 Multiply and write the answer with like terms grouped.

$$(6x^2 + x)(-5x^2 + 6x - 4)$$

A	$-35x^2 + 42x - 28$
B	$-30x^4 + 31x^3 - 18x^2 - 4x$
C	$30x^4 + 41x^3 + 30x^2 + 4x$
D	$-30x^4 - 5x^3 - 24x^2 - 4x$