



Polynomial Operations

1 Simplify by combining like terms.

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

- | | |
|---|-----------------------------|
| A | $-3x^3 - x^2 + 2x - 9$ |
| B | $-3x^3 - x^2 + 2x - 3x - 9$ |
| C | $-3x^3 - x^2 - x - 9$ |
| D | $-3x^3 - x^2 + 5x - 9$ |

2 Simplify by combining like terms.

$$x^4y^2 - 5x^2 + 4xy^3 + 6xy^3 + 8y$$

- | | |
|---|--------------------------------------|
| A | $x^4y^2 + 10xy^3 - 5x^2 + 8y$ |
| B | $x^4y^2 + 4xy^3 - 5x^2 + 8y$ |
| C | $x^4y^2 - 2xy^3 - 5x^2 + 8y$ |
| D | $x^4y^2 + 4xy^3 + 6xy^3 - 5x^2 + 8y$ |

3 Simplify by combining like terms.

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

- | | | | |
|---|--|---|--|
| A | $\frac{9}{4}x^2 - \frac{1}{2}x + \frac{2}{3}$ | B | $\frac{11}{4}x^2 - \frac{1}{2}x + \frac{2}{3}$ |
| C | $\frac{9}{4}x^2 - \frac{1}{2}x^2 - \frac{1}{2}x + \frac{2}{3}$ | D | $\frac{7}{4}x^2 - \frac{1}{2}x + \frac{2}{3}$ |

5 What is the term in this number sequence when $n = 3$

$$4 - 3n^2$$

- | | | | | | |
|---|-----|---|-----|---|-----|
| A | -23 | B | -39 | C | 21 |
| D | -77 | E | -31 | F | -14 |

6 What is the value of this equation when $d=6$, $b=-6$

$$2(7d + 6b)$$

- | | | | |
|---|-----------|---|------|
| A | $12d$ | B | 216 |
| C | $7d - 12$ | D | -252 |
| E | 12 | F | 7 |

7 Which answer is the same expression as this

$$(8n + 8)^2$$

- | | | | |
|---|---------------------|---|----------------------|
| A | $64n^2 + 64n + 128$ | B | $128n^2 - 128n + 64$ |
| C | $64n^2 - 128n + 64$ | D | $64n^2 + 128n - 64$ |
| E | $64n^2 - 128n + 24$ | F | $64n^2 + 128n + 64$ |



Polynomial Operations

- 8** What is the highest power and leading coefficient of this function?

$$f(x) = -4x^2 + 4x + 4$$

- 9** Which answer is the same expression as this

$$(x - 6)(x - 2)$$

A

$$x^2 - 8x + 12$$

B

$$8x^2 - 8x + 12$$

- 10** Multiply and write the answer with like terms grouped.

$$-4y^2(-6x^2y^2 + x^2y - 7xy)$$

A

$$24x^2y^4 + 4x^2y^3 + 28xy^3$$

B

$$24x^2y^2 - 4x^2y + 28xy$$

C

$$24x^2y^4 - 4x^2y^3 + 28xy^3$$

D

$$-4x^2y^3 + 28xy^3$$

- 11** Multiply and write the answer with like terms grouped.

$$-7x^2(6x^3 + x - 4)$$

A

$$-42x^5 - 7x^3 + 28x^2$$

B

$$-42x^3 - 7x + 28$$

C

$$-7x^3 + 28x^2$$

D

$$42x^5 + 7x^3 + 28x^2$$

- 12** Multiply and write the answer with like terms grouped.

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

A

$$-2x^3 - 10x^2 + 4x$$

B

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

C

$$2x^5 + 10x^4 + 4x^3$$

D

$$-2x^5 - 10x^4 + 4x^3$$



Polynomial Operations

13 Multiply and write the answer with like terms grouped.

$$-3xy(-6x^4y + x^2y^2 - 4x^2y)$$

A	$18x^4y - 3x^2y^2 + 12x^2y$
B	$18x^5y^2 + 3x^3y^3 + 12x^3y^2$
C	$-3x^3y^3 + 12x^3y^2$
D	$18x^5y^2 - 3x^3y^3 + 12x^3y^2$

14 Multiply and write the answer with like terms grouped.

$$7x^2y^3(-8x^3y^3 + xy^3 - 9y^3)$$

A	$-56x^3y^3 + 7xy^3 - 63y^3$
B	$-56x^5y^6 + 7x^3y^6 - 63x^2y^6$
C	$-56x^5y^6 + 7x^3y^6$
D	$56x^5y^6 + 7x^3y^6 + 63x^2y^6$

15 Multiply and write the answer with like terms grouped.

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

A	$6x^2 + 54x - 42$
B	$6x^4 + 54x^3 - 42x^2$
C	$6x^4 - 42x^2$
D	$6x^4 + 54x^3 + 42x^2$

16 Which answer is the same expression as this

$$(m + 4)(m + 2)$$

A	$8m^2 + 6m + 8$
B	$m^2 + 6m + 8$

17 Which answer is the same expression as this

$$(z + 3)(z + 8)$$

A	$z^2 + 11z + 24$
B	$z^2 + 24z + 24$