

Chapter 5
Form E

Choose the correct answer to each problem.

1. Identify the polynomial as a monomial, binomial or trinomial: $6x^4y^3 - 8x^3y^2$.
a. monomial b. binomial c. trinomial d. none of these
2. Determine the degree of the polynomial: $6x^4y^2 - 8x^3y^2$.
a. 4 b. 6 c. 7 d. 12

For problems 3 – 5, add or subtract as indicated.

3. $(9x^3 + 4x^2 - 6x) + (-5x^3 - 5x^2 + 2x)$
a. $4x^3 + 4x^2 - 11x + 2$ b. $4x^3 - x^2 - 4x$
c. $-45x^6 - 20x^3 - 12x$ d. $-45x^3 - 20x^3 - 12x$
4. $(4x^2y^2 - 2xy + 8y^2) - (-2x^2y^2 + 3xy - 8y^2)$
a. $2x^2y^2 + xy$ b. $6x^2y^2 + 5xy$
c. $6x^2y^2 - 5xy + 16y^2$ d. $8x^4y^2 + 6x^2y^2 + 64y^2$
5. Subtract $5x^3 - 4x^2 - 3x + 2$ from $5x^3 + 4x^2 + 3x - 2$.
a. 0 b. $10x^3$ c. $-8x^2$ d. $8x^2 + 6x - 4$
6. Evaluate $x^3y + x^2y^2 - y^2$ for $x = -2$, $y = -3$.
a. 45 b. 51 c. -21 d. 21

For problems 7 – 13, simplify each expression.

7. $(-3x^4y^2)^3$
a. $-9x^{12}y^6$ b. $-27x^{12}y^6$ c. $-9x^7y^5$ d. $-27x^7y^5$

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8. $5x^2y(2x^4y)^4$
a. $10x^6y^4$ b. $40x^{10}y^5$ c. $10x^{10}y^5$ d. $80x^{18}y^5$
9. $2x^0 + 4^1$
a. 3 b. 4 c. 5 d. 6
10. $(-2a^3b)^2(3a^2b)^3$
a. $-776a^{25}b^{10}$ b. $-6a^{12}b^5$ c. $-108a^6b^5$ d. $108a^{12}b^5$
11. $\frac{(5a^{-3}b^{-4})^2}{15a^{-3}b^4}$
a. $\frac{1}{3b^{12}}$ b. $\frac{5}{3a^3b^{12}}$ c. $\frac{5b^4}{3a^3}$ d. $\frac{5}{3a^9b^4}$
12. $\left(\frac{-7x^{-4}y^6}{y^{-12}}\right)^{-1}$
a. $\frac{7x^4}{y^{18}}$ b. $-\frac{x^4}{7y^6}$ c. $-\frac{7x^4}{y^6}$ d. $-\frac{x^4}{7y^{18}}$
13. $\frac{(2y^4)^3(4y^{-4})^{-2}}{(4y^6)^{-1}}$
a. $2y^{26}$ b. $\frac{y^{14}}{8}$ c. $\frac{y^{14}}{32}$ d. $16y^{14}$

For problems 14 –18, find the product.

14. $-2a^3b(13a^4b^5 - 4a^2b^2 - 3ab)$
a. $-12a^4b^3$ b. $-26a^7b^6 + 8a^5b^3 + 6a^4b^2$
c. $-26a^7b^6 - 8a^4b^3 - 6a^4b^2$ d. $-26a^{12}b^5 + 8a^6b + 6a^3b$
15. $(3x-4)(2x+5)$
a. $6x^2 - 7x - 20$ b. $6x^2 - 20$
c. $6x^2 + 7x - 20$ d. $6x^2 + 23x - 20$

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16. $(4z + 7)(4z - 7)$

a. $16z^2 - 49$

c. $16z^2 - 56z + 49$

b. $16z^2 + 49$

d. $8z - 14$

17. $(3t^2 - 5)^2$

a. $9t^4 - 30t^2 + 25$

c. $9t^4 - 25$

b. $9t^4 + 30t^2 - 25$

d. $9t^2 - 25$

18. $(7x - 3)(2x^2 - 5x - 3)$

a. $14x^3 - 29x^2 - 6x + 9$

c. $14x^3 - 29x^2 + 36x + 9$

b. $14x^3 - 41x^2 - 6x + 9$

d. $14x^3 - 41x^2 - 36x + 9$

For problems 19 – 20, divide.

19.
$$\frac{-50x^4y^3 + 45x^3y^2 - 20x^2y}{-5x^2y}$$

a. $5x^7y^5$

c. $10x^2y^2 + 45x^3y^2 - 20x^2y$

b. $-50x^4y^3 + 45x^3y^2 + 4$

d. $10x^2y^2 - 9xy + 4$

20.
$$\frac{12x^3 + 5x^2 + 5x + 1}{4x + 3}$$

a. $3x^2 - x + 2 - \frac{5}{4x + 3}$

c. $3x^2 + x - 3 + \frac{5}{4x + 3}$

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

d. $3x^2 - x + 2 + \frac{5}{4x + 3}$

21. Write 4.56×10^5 in decimal notation.

a. 0.00000456

b. 4,560,000

c. 456,000

d. 0.000456

22. Write 0.0000056 in scientific notation.

a. 5.6×10^{-7}

b. 5.6×10^6

c. 5.6×10^{-6}

d. 5.6×10^7

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23. Multiply $(5.8 \times 10^{-5})(4.1 \times 10^8)$. Give the answer in scientific notation.
- a. 23.78×10^{-40} b. 23.78×10^3 c. 2.378×10^3 d. 2.378×10^4
24. Divide $\frac{4.2 \times 10^{-4}}{7 \times 10^{-6}}$. Give the answer in scientific notation.
- a. 0.6×10^{-10} b. 6×10^1 c. 6×10^{-10} d. 0.6×10^4
25. A square shaped garden has sides measuring x feet. The length of the garden is increased by 8 feet and the width is increased by 3 feet. Write a polynomial in descending powers of x that represents the area of the garden.
- a. $2x + 11$ b. $x^2 + 11x$ c. $x^2 + 11x + 24$ d. $x^2 + 11x + 11$