

Chapter 5
Form F

Choose the correct answer to each problem.

1. Identify the polynomial as a monomial, binomial or trinomial: $15x^4y^3 + 3x^3y^2 - 4xy^5$.
a. monomial b. binomial c. trinomial d. none of these
2. Determine the degree of the polynomial: $15x^4y^3 + 3x^3y^2 - 4xy^5$.
a. 4 b. 6 c. 7 d. 12

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

3. $\left(\frac{2}{3}x^5 + \frac{1}{4}x^2 - x + \frac{2}{5}\right) + \left(\frac{1}{2}x^5 + \frac{2}{3}x^3 + \frac{1}{2}x + \frac{3}{10}\right)$
a. $\frac{3}{5}x^5 + \frac{2}{3}x^3 + \frac{1}{4}x^2 - \frac{1}{2}x + \frac{1}{3}$ b. $\frac{7}{6}x^5 + \frac{2}{3}x^3 + \frac{1}{4}x^2 - \frac{1}{2}x + \frac{7}{10}$
c. $\frac{2}{6}x^{10} + \frac{2}{12}x^5 - \frac{1}{2}x^2 + \frac{6}{50}$ d. $\frac{7}{6}x^{10} + \frac{11}{12}x^5 - \frac{1}{2}x^2 + \frac{7}{10}$
4. $(7x^3y^2 + 4x^2y^2 - 5xy^2) - (2x^3y^2 + 3x^2y^2 - 3xy^2)$
a. $5x^3y^2 + 7x^2y^2 - 8xy^2$ b. $5x^3y^2 + x^2y^2 - 2xy^2$
c. $5x^3y^2 + 7x^2y^2 - 2xy^2$ d. $14x^3y^2 - 12x^2y^2 - 15xy^2$
5. Subtract $14x^3 - 5x^2 - 2x + 3$ from $7x^3 + 3x - 4$.
a. $21x^3 - 5x + x - 1$ b. $7x^3 - 5x^2 - 5x + 7$
c. $21x^3$ d. $-7x^3 + 5x^2 + 5x - 7$
6. Evaluate $x^3y^2 - xy^2 + xy$ for $x = -2$, $y = 3$.
a. -87 b. -72 c. -60 d. -48

For problems 7 – 13, simplify each expression.

7. $6^3 \cdot 6^{-5} x^7 \cdot x^{-3}$
a. $36^{-2} x^{-21}$ b. $\frac{1}{1296x^{21}}$ c. $-12x^4$ d. $\frac{x^4}{36}$
8. $\left(-\frac{2}{3}x^4y^2\right)^2$
a. $\frac{4x^8y^4}{9}$ b. $\frac{3x^8y^4}{2}$ c. $\frac{9x^{16}y^4}{4}$ d. $-\frac{4x^8y^4}{3}$

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9. $3x^0 - 4^{-1}$

a. $\frac{3}{4}$

b. -1

c. $\frac{11}{4}$

d. $-\frac{11}{4}$

10. $(5x^2y^4)^2(-3x^{-4}y^{-1})^3$

a. $-\frac{15y^5}{x^8}$

b. $\frac{y^5}{15x^8}$

c. $-\frac{675y^5}{x^8}$

d. $-\frac{270y^{15}}{x^{48}}$

11. $\frac{(6^{-2}x^3y^{-4})^2}{2^{-4}x^3y^{-4}}$

a. $-\frac{12x^9}{y^{12}}$

b. $\frac{x^3}{81y^4}$

c. $\frac{x^9}{81y^{12}}$

d. $-\frac{12x^3}{y^4}$

12. $\left(\frac{-8a^{-1}b^{-3}}{2a^3b}\right)^{-2}$

a. $\frac{8b^5}{a}$

b. $8a^5b^7$

c. $\frac{a^{16}b^{16}}{16}$

d. $\frac{a^8b^8}{16}$

13. **Error! Objects cannot be created from editing field codes.**

a. $\frac{3x^{19}}{16}$

b. x^7

c. $\frac{x^7}{16}$

d. $\frac{x^9}{16}$

For problems 14–18, find the product.

14. $-5x^4y^2(3x^3y^5 - 2x^2y^4 - 6xy^3)$

a. $-15x^7y^7 - 10x^6y^6 - 30x^5y^5$

c. $-15x^{12}y^{10} + 10x^8y^8 + 30x^4y^6$

b. $-15x^7y^7 + 10x^6y^6 + 30x^5y^5$

d. $-15x^{12}y^{10} - 10x^8y^8 - 30x^4y^6$

15. $(7t + 5)(3t - 7)$

a. $21t^2 + 64t + 35$

c. $21t^2 - 35$

b. $21t^2 - 34t - 35$

d. $21t^2 + 34t - 35$

16. $(4u - 5v)(4u + 5v)$

a. $16u^2 - 25v^2$

c. $16u^2 - 40uv + 25v^2$

b. $16u^2 + 25v^2$

d. $16u^2 - 40uv - 25v^2$

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17. $(8x^2 - 3)^2$
a. $64x^4 - 9$ b. $64x^4 - 48x^2 + 9$
c. $64x^2 - 9$ d. $64x^4 + 48x^2 - 9$
18. $(5x - 2)(2x^2 + 4x - 5)$
a. $10x^3 + 20x^2 - 25x$ b. $10x^3 - 24x^2 - 33x + 10$
c. $7x^3 + 24x - 33x + 10$ d. $10x^3 + 16x^2 - 33x + 10$

For problems 19 – 20, divide.

19.
$$\frac{-24a^3b^5 + 36a^2b^2 - 12ab^2}{-4ab}$$

a. $6a^2b^4 + 9ab - 3b$ b. $6a^2b^4 - 9ab + 3b$
c. $6a^2b^4 + 36a^3b^2 - 12ab^2$ d. $-12a^3b^5 - 9ab - 12ab^2$
20.
$$\frac{8a^3 - 27}{2a - 3}$$

a. $4a^2 + 9$ b. $4a^2 - 6a + 9$
c. $4a^2 + 6a + 9$ d. $4a^2 - 6a - 9 - \frac{54}{2a + 3}$
21. Write 2.56×10^{-3} in decimal notation.
a. 0.00256 b. 25,600 c. 0.0000256 d. 256,000
22. Write 3,250,000,000 in scientific notation.
a. 3.25×10^9 b. 3.205×10^9 c. 3.205×10^{-9} d. 3.205×10^{-10}
23. Multiply $(7.3 \times 10^8)(4.9 \times 10^{-3})$. Give the answer in scientific notation.
a. 3.577×10^6 b. 3.577×10^{-6} c. 35.77×10^{-24} d. 3.577×10^{-23}
24. Divide $\frac{2 \times 10^7}{5 \times 10^{-2}}$. Give the answer in scientific notation.
a. 0.4×10^5 b. 4×10^4 c. 0.4×10^9 d. 4×10^8
25. The width of a rectangular flower bed is $x + 5$ feet. The length of the garden is 7 feet longer than the width. Write a polynomial that represents the area of the garden.
a. $x^2 + 12x + 35$ b. $x^2 + 35$ c. $x^2 + 17x + 60$ d. $7x + 35$