

Chapter 6
Form F

Choose the correct answer to each problem.

- Classify as a monomial, binomial or trinomial: $15x^4y^3 + 3x^3y^2 - 4xy^5$,
 a. monomial b. binomial c. trinomial d. none of these
- 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.

- $$\left(\frac{2}{3}x^5 + \frac{1}{4}x^2 - x + \frac{2}{5}\right) + \left(\frac{1}{2}x^5 + \frac{2}{3}x^3 + \frac{1}{2}x + \frac{3}{10}\right)$$

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. $\frac{7}{6}x^{10} + \frac{11}{12}x^5 - \frac{1}{2}x^2 + \frac{7}{10}$
- $$(7x^3y^2 + 4x^2y^2 - 5xy^2) - (2x^3y^2 + 3x^2y^2 - 3xy^2)$$

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. $14x^3y^2 - 12x^2y^2 - 15xy^2$
- 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. $-7x^3 + 5x^2 + 5x - 7$
- 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.

- $$6^3 \cdot 6^{-5} x^7 \cdot x^{-3}$$

a. $36^{-2} x^{-21}$ b. $\frac{1}{1296x^{21}}$ c. $-12x^4$ d. $\frac{x^4}{36}$
- $$\left(-\frac{2}{3}x^4y^2\right)^2$$

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. $\frac{(3x^4)^2(4x^{-5})^{-1}}{12x^{-6}}$

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

b. x^7

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

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

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. $\left(t - \frac{1}{2}\right)\left(t^2 + \frac{1}{2}t + \frac{1}{4}\right)$
- a. $t^3 + \frac{1}{2}t - \frac{1}{8}$ b. $t^3 + \frac{1}{4}t - \frac{1}{8}$
 c. $t^3 - t^2 - \frac{1}{2}t - \frac{1}{8}$ d. $t^3 - \frac{1}{8}$

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. Simplify $(7.3 \times 10^8)(4.9 \times 10^{-3})$.
 a. 3.577×10^6 b. 3.577×10^{-6} c. 35.77×10^{-24} d. 3.577×10^{-23}
24. Simplify $\frac{2 \times 10^7}{5 \times 10^{-2}}$.
 a. 0.4×10^5 b. 4×10^4 c. 0.4×10^9 d. 4×10^8
25. The mass of an electron is approximately 9.1×10^{-28} gram. The mass of a neutron is approximately 1840 times that of an electron. What is the mass of 2000 neutrons?
 a. 1.82×10^{-24} b. 1.6744×10^{-24} c. 3.3488×10^{-21} d. 9.89×10^{-28}