

Multiplying and Power to Power Practice

$$1. \quad a^2 \cdot a^3 = a^5$$

$$2. \quad x^5 \cdot x = x^6$$

$$3. \quad 5^2 \cdot 5^4 = 5^6 = 15625$$

$$4. \quad m^3 \cdot m^4 \cdot m^5 = m^{12}$$

$$5. \quad x^2 \cdot y^3 \cdot y^2 = x^2 y^5$$

$$6. \quad (3m^3)(2m^5) = 6m^8$$

$$7. \quad (-5m^2)(-2m^4) = 10m^6$$

$$8. \quad (6p^5)(8p^4) = 48p^9$$

$$9. \quad (2x^2y)(3xy^4) = 6x^3y^5$$

$$10. \quad (-2a^2b^3)(3a^4) = -6a^6b^3$$

$$11. \quad 5x^2y^3(-2x^4y^5) = -10x^6y^8$$

$$12. \quad (-8n^2m)(3m^2n^5) = -24n^7m^3$$

$$13. \quad (x^2)^3 = x^6$$

$$14. \quad (a^4)^2 = a^8$$

$$15. \quad (y^3)^4 = y^{12}$$

$$16. \quad d^2 \cdot (d^3)^4 = d^{14}$$

$$17. \quad (xy)^3 = x^3y^3$$

$$18. \quad (x^2y)^4 = x^8y^4$$

$$19. \quad (2a^2b^3)^2 = 4a^4b^6$$

$$20. \quad (5a^3)^2 = 25a^6$$

$$21. \quad a^3 \cdot (a^2b)^4 = a^{11}b^4$$

$$a^3 \cdot a^8b^4$$

$$22. \quad (x^5)^2 = x^{10}$$

$$23. \quad (3^2) \cdot (3^2)^3 = 3^8 = 6561$$

$$3^2 \cdot 3^6$$

$$24. \quad (2^5) (2^4)^2 = 2^{13} = 8192$$

$$2^5 \cdot 2^8$$

Integrated Algebra 1E
 Multiplying Monomials Practice

$$1. \quad m \cdot m^8 = m^9$$

$$2. \quad (2c^3)2c = 4c^4$$

$$3. \quad (-7xy)(-2x) = 14x^2y$$

$$4. \quad g^{-6} = \frac{1}{g^6}$$

$$5. \quad q^0 = 1$$

$$6. \quad a^{-2}b^2 = \frac{b^2}{a^2}$$

$$7. \quad 7xy^{-8}z = \frac{7xz}{y^8}$$

$$8. \quad (-3x^2)(6x^2) = -18x^4$$

$$9. \quad (-8ab)(a^2b^5) = -8a^3b^6$$

$$10. \quad (x^{-3})(x^2) = \frac{1}{x}$$

$$11. \quad 12m^{-6}n^4 = \frac{12n^4}{m^6}$$

$$12. \quad (xy)(x^3y^3) = x^4y^4$$

$$13. \quad (b^3)(b^{-5}) = \frac{1}{b^2}$$

$$14. \quad x^{-3}y^2z^{-4} = \frac{y^2}{x^3z^4}$$

$$15. \quad (-7xy)(-2x) = 14x^2y$$

$$16. \quad (a^2b^5)(a^2b^5) = a^4b^{10}$$

$$17. \quad (5m^3)(3m^2n^4) = 15m^5n^4$$

$$18. \quad -3x^2 \cdot x^3 = -3x^5$$

$$19. \quad y^{-8} = \frac{1}{y^8}$$

$$20. \quad (a^{-2})(b^3) = \frac{b^3}{a^2}$$

$$21. \quad -6x^{-4}y^6 = -\frac{6y^6}{x^4}$$

$$22. \quad (-10x^4y^2)(3x^2y) = -30x^6y^3$$

$$23. \quad 5m^{-3} = \frac{5}{m^3}$$

$$24. \quad 3^{-2} = \frac{1}{3^2} = \frac{1}{9}$$

$$25. \quad (5x)^3 = 125x^3$$

$$26. \quad (-3y)^3 = -27y^3$$

$$27. \quad (-2)^3 = -8$$

$$28. \quad (-4mn)^2 = 16m^2n^2$$

$$29. \quad 5y^{-1}z^{-2} = \frac{5}{yz^2}$$

$$30. \quad (5^{-2})^2 = \frac{1}{5^4} = \frac{1}{625}$$

Zero and Negative Exponents

Key

Simplify each expression: Write each with positive exponents.

1. a^{-4} $\frac{1}{a^4}$

13. $(2a^{-3})(5a^4)$ $10a$

2. $\frac{1}{b^{-3}}$ b^3

14. $(-3p^{-5})(p^2)$ $-\frac{3}{p^3}$

3. $a^{-2}b$ $\frac{b}{a^2}$

15. $\frac{1}{b^{-8}b^{-1}}$ b^9

4. $c^{-2}b^{-1}$ $\frac{1}{c^2b}$

16. $(3d^{-4})(5d^8)$ $15d^4$

5. c^0d^4 d^4

17. $s^3 \cdot s^{-5} \cdot s^7$ s^5

6. d^0c^{-4} $\frac{1}{c^4}$

18. $\frac{1}{x^3x^{-7}}$ x^4

7. $m^8 \cdot m^{-5}$ m^3

19. $\frac{1}{m^{-3}m}$ m^2

8. $a^{-5} \cdot a^3$ $\frac{1}{a^2}$

20. $a^{-7} \cdot a^9 \cdot a^0$ a^2

9. $r^3 \cdot r^{-2}$ r

21. $5^{-6} \cdot 5^4$ $\frac{1}{25}$

10. $n^{-3} \cdot n^{-4}$ $\frac{1}{n^7}$

22. $r^7 \cdot s^4 \cdot s^{-1} \cdot r^3$ $r^{10}s^3$

11. $x^{-9} \cdot x^3 \cdot x^2$ $\frac{1}{x^4}$

23. $n^{-6} \cdot n^{-9}$ $\frac{1}{n^{15}}$

12. $\frac{1}{t^{-5}t^2}$ t^3

Integrated Algebra 1E
Negative Exponents Practice

Key

1. $m^8 \cdot m^{-5} = m^3$

2. $r^3 \cdot r^{-2} = r$

3. $a^{-5} \cdot a^3 = \frac{1}{a^2}$

4. $x^{-4} \cdot x^{-7} \cdot x^5 = \frac{1}{x^6}$

5. $n^{-3} \cdot n^{-4} = \frac{1}{n^7}$

6. $(2a^{-3})(5a^4) = 10a$

7. $(-3p^{-5})(2p^8) = -6p^3$

8. $s^3 \cdot s^{-5} \cdot s^7 = s^5$

9. $\frac{1}{b^{-8}b^{-1}} = b^9$

10. $\frac{1}{x^3x^{-7}} = x^4$

11. $\frac{1}{y^{-5}y^8} = \frac{1}{y^3}$

12. $\frac{1}{m \cdot m^{-3}} = m^2$

13. $a^{-7} \cdot a^9 = a^2$

14. $r^6 \cdot r^{-13} = \frac{1}{r^7}$

15. $5^{-6} \cdot 5^4 = \frac{1}{25}$

16. $(d^2)^{-4} = \frac{1}{d^8}$

17. $(2^{-3})^4 = \frac{1}{2^{12}}$

18. $(m^{-3}n^4)^{-4} = \frac{m^{12}}{n^{16}}$

19. $(y^6)^{-3} \cdot y^{21} = y^3$

20. $(b^2)^4 \cdot b^{-9} = \frac{1}{b}$

21. $(7b^{-1})^2 = \frac{49}{b^2}$

22. $(y^3)^{-5} \cdot y^{20} = y^5$

23. $(n^{-2})^5 \cdot n^6 = \frac{1}{n^4}$

Key

Misc Review
Polynomials

1. $x^4 \cdot x^5$ x^9

2. $(-2x)^5$ $-32x^5$

3. $\frac{-3}{a^{-5}}$ $-3a^5$

4. $200^0 c^5$ c^5

5. $\frac{x^6}{x^4}$ x^2

6. $\frac{x^{-5}}{x^{-6}}$ x

$$7. \left(\frac{-2m^2n}{3mn^2} \right)^4 = \frac{16m^8n^4}{81n^4} = \boxed{\frac{16m^4}{81}}$$

$$8. x^4 \cdot \frac{1}{x^3} = x$$

$$9. (3a)^3 \cdot (-4a)^3$$

$$27a^3 \cdot 64a^3 = \boxed{1728a^6}$$

$$10. (8m^3)^2 \left(\frac{1}{2}m^2 \right)^2$$

$$64m^6 \cdot \frac{1}{4}m^4 = \boxed{16m^{10}}$$

$$11. \frac{20x^3y}{4xy^2} \cdot \frac{-6xy}{-x}$$

$$\frac{5x^2}{1} \cdot \frac{6y}{1} = \boxed{30x^2y}$$

Integrated Algebra

Key

Unit 6 Polynomials Practice

Simplify each expression.

$$1) \frac{4x^3y^3}{2xy} \cdot \frac{5xy^3}{2y}$$

$$\frac{20x^4y^6}{4xy^2} = \boxed{5x^3y^4}$$

$$2) \frac{36a^8b^2}{ab} \cdot \frac{ab^2}{6}$$

$$\frac{36a^9b^4}{6ab} = \boxed{6a^8b^3}$$

$$3) \frac{6x^2y^2}{xy^3} \cdot \frac{(4x^2y)^2}{xy^2}$$

$$\frac{96x^6y^4}{x^2y^5} = \boxed{\frac{96x^4}{y}}$$

$$4) \frac{x^2}{xy^{-4}} \cdot \frac{2x^{-3}y^4}{3xy^{-1}}$$

$$\frac{2x^{-1}y^4}{3x^2y^{-5}} = \boxed{\frac{2y^9}{3x^3}}$$

$$5) \frac{4xy}{2x^{-1}y^{-3}} \cdot \frac{2xy^2}{3xy}$$

$$\frac{8x^2y^3}{6y^{-2}} = \boxed{\frac{4x^2y^5}{3}}$$

$$6) \frac{3x^3y}{4x} \cdot \frac{12x^2y^2}{y^3}$$

$$\frac{36x^5y^3}{4xy^3} = \boxed{9x^4}$$

Exponent Rules

Name Kerry

Directions: Simplify the following expressions using the rules for working with exponents. When finished, find the letters matching your answers in the table, and decode the hidden message.

1. $x^2 \cdot x^7 = X^9$	6. $(2xy)^3 = 8x^3y^3$	11. $(x^7)^2 = X^{14}$	16. $\left(\frac{3x}{y}\right)^2 = \frac{9x^2}{y^2}$
2. $\frac{x^6}{x^3} = X^3$	7. $3\left(\frac{x}{y}\right)^2 = \frac{3x^2}{y^2}$	12. $\frac{x^4}{x^2} = X^2$	17. $\frac{2x^5}{x} = 2x^4$
3. $\frac{x^3}{x^5} = \frac{1}{X^2}$	8. $3\left(\frac{x}{y}\right)^{-2} = \frac{3y^2}{x^2}$	13. $\frac{x^0}{x^{-8}} = X^8$	18. $\left(\frac{3x}{y}\right)^{-2} = \frac{y^2}{9x^2}$
4. $\frac{2x^5}{x^{-2}} = 2X^7$	9. $2x^3(2x)^0 = 2x^3$	14. $x^2 \cdot x^3 = X^5$	19. $\frac{10y^4}{x^{-3}} = 10y^4x^3$
5. $(x^3)^2 = X^6$	10. $\frac{10x^{-3}}{y^4} = \frac{10}{X^3y^4}$	15. $2(xy)^3 = 2x^3y^3$	20. $\frac{x^{-10}}{x^{-2}} = \frac{1}{X^8}$

A: x^{14}	C: $2x^7$	D: $\frac{10}{x^3y^4}$	E: x^2	F: $2x^3y^3$
H: x^2	I: $\frac{3x^2}{y^2}$	L: $2x^4$	M: $\frac{y^2}{9x^2}$	N: x^3
O: $8x^3y^3$	P: $10x^3y^4$	R: x^9	S: x^5	T: $\frac{3y^2}{x^2}$
U: x^{-8}	W: $\frac{9x^2}{y^4}$	X: x^8	Y: $2x^3$	Z: x^6

FOLLOW YOUR DREAMS.

EXCEPT FOR THE ONE WHERE

YOU ARE IN MATH CLASS IN

YOUR UNDERWEAR!

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