

Law of Exponents

Date _____

 Simplify.

1) $4x^4y^3 \cdot 3yx^2$


2) $2xy \cdot 3y^2$

3) $2nm^4 \cdot nm^3 \cdot 4n^2$

4) $3a^2 \cdot a^3$

5) $4x \cdot 2x^2$

6) $3u^4v^2 \cdot 4u^3v^4$

 7) $x^4 \cdot 2yx^4 \cdot 3xy$

8) $u^2 \cdot 3vu^4$

9) $3x^2 \cdot 2yx^4$

10) $3y^2 \cdot 2y$

Simplify. Your answer should contain only positive exponents.

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

12) $\frac{4m^2}{n^2}$

$$13) -\frac{2x^3y^3}{3x^2y^4}$$

$$14) \frac{n^3}{4nm^3}$$

$$15) \frac{ba^2}{-2a^4b^3}$$

$$16) \frac{-8x^8y^3}{-8x^{10}y^4}$$

$$17) \frac{10xy^{10}}{5x^3y^8}$$

$$18) \frac{9ba^3}{8b^5}$$

$$19) \frac{7x^{10}y^5}{-6x^7y^7}$$

$$20) \frac{-2x^5y^9}{-7y^8}$$

$$21) \frac{-pm^5}{-7m^{10}p^7}$$

$$22) -\frac{5h^4j^9k^8}{5j^8k^6}$$

$$23) \frac{5m^3p^9}{-m^4n^3p^{10}}$$

$$24) \frac{-6pm^6n^5}{-4p^8}$$

25) $-\frac{m^{10}q^{10}}{7m^2p^4q^4}$

Simplify.

26) $(-3ba^2)^4$

27) $(x^4)^2$

28) $(-4a^2b^4)^4$

29) $(-4y^4)^2$

30) $(-2yx^2)^3$

31) $(-3x^4)^2$

32) $(3h^2j^3)^2$

33) $(-x^3)^4$

34) $(-x^3y^3z^4)^4$

35) $(q^3)^4$

36) $(2yx^4)^4$

37) $(-p^3q^4)^2$

38) $(zy^2)^2$

39) $(2zy^3)^2$

40) $(-4x^3y^2z^3)^3$

Simplify. Your answer should contain only positive exponents.

41) $\frac{3r^4}{-7r^6 \cdot 2r^6}$

42) $\frac{3b^5 \cdot 3b^{10}}{10b^9}$

43) $\frac{2p^7}{-8p^8 \cdot -2p}$

44) $\frac{5n^{10}}{-9n^8 \cdot -5n^{10}}$

45) $\frac{-m^9}{-7m^2 \cdot 7m^{10}}$

46) $\frac{-10x^3y^3 \cdot -6x^3}{-9yx^4 \cdot 10x^7y^2}$

47)
$$\frac{y^4}{9x^8y^8 \cdot 8x^7}$$

48)
$$\frac{5x^5y^8 \cdot -3x^6}{9x^{10}y^9}$$

49)
$$\frac{-3y^8 \cdot 8x^7y^5}{-6x^3}$$

50)
$$\frac{8n^8 \cdot 9m^6n^5}{2m^2n^6}$$

51)
$$\left(\frac{-n^3 \cdot 2n^4}{-n}\right)^4$$

52)
$$\frac{(k^2)^4 \cdot -2k^2}{2k}$$

53)
$$\frac{m^4}{(m^3)^2 \cdot (-m)^4}$$

54)
$$\frac{2p^4}{(-2p^3)^3 \cdot 2p}$$

55)
$$\frac{2n \cdot (-2n)^2}{2n^4 \cdot n^2}$$

56)
$$\frac{b^3}{(-b^4 \cdot 2b^3)^3}$$

Law of Exponents

Simplify.

$$1) 4x^4y^3 \cdot 3yx^2$$

$$12x^6y^4$$

$$2) 2xy \cdot 3y^2$$

$$6xy^3$$

$$3) 2nm^4 \cdot nm^3 \cdot 4n^2$$

$$8n^4m^7$$

$$4) 3a^2 \cdot a^3$$

$$3a^5$$

$$5) 4x \cdot 2x^2$$

$$8x^3$$

$$6) 3u^4v^2 \cdot 4u^3v^4$$

$$12u^7v^6$$

$$7) x^4 \cdot 2yx^4 \cdot 3xy$$

$$6x^9y^2$$

$$8) u^2 \cdot 3vu^4$$

$$3u^6v$$

$$9) 3x^2 \cdot 2yx^4$$

$$6x^6y$$

$$10) 3y^2 \cdot 2y$$

$$6y^3$$

Simplify. Your answer should contain only positive exponents.

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

$$\frac{4}{3}$$

$$12) \frac{4m^2}{n^2}$$

$$\frac{4m^2}{n^2}$$

$$13) \frac{2x^3y^3}{3x^2y^4}$$
$$-\frac{2x}{3y}$$

$$14) \frac{n^3}{4nm^3}$$
$$\frac{n^2}{4m^3}$$

$$15) \frac{ba^2}{-2a^4b^3}$$
$$-\frac{1}{2a^2b^2}$$

$$16) \frac{-8x^8y^3}{-8x^{10}y^4}$$
$$\frac{1}{x^2y}$$

$$17) \frac{10xy^{10}}{5x^3y^8}$$
$$\frac{2y^2}{x^2}$$

$$18) \frac{9ba^3}{8b^5}$$
$$\frac{9a^3}{8b^4}$$

$$19) \frac{7x^{10}y^5}{-6x^7y^7}$$
$$-\frac{7x^3}{6y^2}$$

$$20) \frac{-2x^5y^9}{-7y^8}$$
$$\frac{2x^5y}{7}$$

$$21) \frac{-pm^5}{-7m^{10}p^7}$$
$$\frac{1}{7m^5p^6}$$

$$22) \frac{-5h^4j^9k^8}{5j^8k^6}$$
$$-h^4jk^2$$

$$23) \frac{5m^3p^9}{-m^4n^3p^{10}}$$
$$-\frac{5}{mn^3p}$$

$$24) \frac{-6pm^6n^5}{-4p^8}$$
$$\frac{3m^6n^5}{2p^7}$$

$$25) -\frac{m^{10}q^{10}}{7m^2p^4q^4}$$
$$-\frac{m^8q^6}{7p^4}$$

Simplify.

$$26) (-3ba^2)^4$$
$$81b^4a^8$$

$$27) (x^4)^2$$
$$x^8$$

$$28) (-4a^2b^4)^4$$
$$256a^8b^{16}$$

$$29) (-4y^4)^2$$
$$16y^8$$

$$30) (-2yx^2)^3$$
$$-8y^3x^6$$

$$31) (-3x^4)^2$$
$$9x^8$$

$$32) (3h^2j^3)^2$$
$$9h^4j^6$$

$$33) (-x^3)^4$$
$$x^{12}$$

$$34) (-x^3y^3z^4)^4$$
$$x^{12}y^{12}z^{16}$$

$$35) (q^3)^4$$
$$q^{12}$$

$$36) (2yx^4)^4$$
$$16y^4x^{16}$$

$$37) (-p^3q^4)^2$$
$$p^6q^8$$

$$38) (zy^2)^2$$
$$z^2y^4$$

$$39) (2zy^3)^2$$
$$4z^2y^6$$

$$40) (-4x^3y^2z^3)^3$$
$$-64x^9y^6z^9$$

Simplify. Your answer should contain only positive exponents.

$$41) \frac{3r^4}{-7r^6 \cdot 2r^6}$$
$$-\frac{3}{14r^8}$$

$$42) \frac{3b^5 \cdot 3b^{10}}{10b^9}$$
$$\frac{9b^6}{10}$$

$$43) \frac{2p^7}{-8p^8 \cdot -2p}$$
$$\frac{1}{8p^2}$$

$$44) \frac{5n^{10}}{-9n^8 \cdot -5n^{10}}$$
$$\frac{1}{9n^8}$$

$$45) \frac{-m^9}{-7m^2 \cdot 7m^{10}}$$
$$\frac{1}{49m^3}$$

$$46) \frac{-10x^3y^3 \cdot -6x^3}{-9yx^4 \cdot 10x^7y^2}$$
$$-\frac{2}{3x^5}$$

$$47) \frac{y^4}{9x^8y^8 \cdot 8x^7}$$

$$\frac{1}{72x^{15}y^4}$$

$$48) \frac{5x^5y^8 \cdot -3x^6}{9x^{10}y^9}$$

$$-\frac{5x}{3y}$$

$$49) \frac{-3y^8 \cdot 8x^7y^5}{-6x^3}$$

$$4y^{13}x^4$$

$$50) \frac{8n^8 \cdot 9m^6n^5}{2m^2n^6}$$

$$36n^7m^4$$

$$51) \left(\frac{-n^3 \cdot 2n^4}{-n} \right)^4$$

$$16n^{24}$$

$$52) \frac{(k^2)^4 \cdot -2k^2}{2k}$$

$$-k^9$$

$$53) \frac{m^4}{(m^3)^2 \cdot (-m)^4}$$

$$\frac{1}{m^6}$$

$$54) \frac{2p^4}{(-2p^3)^3 \cdot 2p}$$

$$-\frac{1}{8p^6}$$

$$55) \frac{2n \cdot (-2n)^2}{2n^4 \cdot n^2}$$

$$\frac{4}{n^3}$$

$$56) \frac{b^3}{(-b^4 \cdot 2b^3)^3}$$

$$-\frac{1}{8b^{18}}$$