

4.2 Assignment

Date _____ Period _____

Simplify. Your answer should contain only positive exponents.

1) $-\frac{2yy^2}{3y^2}$

2) $-\frac{3y^3 \cdot 2y^3}{x^0 y^2}$

3) $\frac{2n^3}{-m^0 n^2 \cdot -m^0 n^2}$

4) $\frac{-3nm^2 \cdot 3n}{-mn^0}$

5) $\frac{-ba^2 \cdot 3ba^3}{-2a^2}$

6) $\frac{3b^3 \cdot -2a^3 b^3}{-2a^2}$

7) $\frac{m^2 n^3 \cdot mn^2 \cdot nm^3}{nm^2}$

8) $-\frac{2m^3 \cdot mn^3}{nm^3}$

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

10) $-\frac{2x^2}{3x^2 y^3 \cdot x^2}$

11) $(-u^4 v^3)^3 \cdot 2v^2 \cdot 2u^5 v^4$

12) $(-2x^5 y^0)^3 \cdot -x^5$

13) $-2x^2y^4 \cdot (-x)^3$

14) $(2u^5v^5)^4 \cdot (2u^4v^5)^5$

15) $(-y^4)^0 \cdot xy$

16) $(2x^5y^3 \cdot x)^5$

17) $(-2x^4y^4 \cdot 2xy^3)^2 \cdot -2x^0y^5$

18) $(-2ba^5 \cdot 2a^3)^5$

19) $\left(\frac{m^0p^0 \cdot pm^4n^3}{nm^4}\right)^3$

20) $\frac{(-r^4)^2}{-2p^4q^4r^4 \cdot -p^2q^4r^2}$

21) $-\frac{mp^2q^4 \cdot -2m^3p^4q^4}{(-2m^3q^4)^4}$

22) $-\frac{2abc^2}{(2b^4c^2)^4 \cdot -a^3b^3c^4}$

23) $-\frac{xyz}{(-2x^3y^4z^3 \cdot 2x^3z^2)^3}$

24) $\frac{(2zx^4y^4 \cdot x^4y^4)^4}{-2x^2y^4z^2}$

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Simplify. Your answer should contain only positive exponents.

$$1) \frac{2yy^2}{3y^2}$$

$$\frac{2y}{3}$$

$$2) \frac{3y^3 \cdot 2y^3}{x^0 y^2}$$

$$-6y^4$$

$$3) \frac{2n^3}{-m^0 n^2 \cdot -m^0 n^2}$$

$$\frac{2}{n}$$

$$4) \frac{-3nm^2 \cdot 3n}{-mn^0}$$

$$9n^2m$$

$$5) \frac{-ba^2 \cdot 3ba^3}{-2a^2}$$

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

$$6) \frac{3b^3 \cdot -2a^3b^3}{-2a^2}$$

$$3b^6a$$

$$7) \frac{m^2 n^3 \cdot mn^2 \cdot nm^3}{nm^2}$$

$$m^4 n^5$$

$$8) \frac{2m^3 \cdot mn^3}{nm^3}$$

$$-2mn^2$$

$$9) \frac{2x^3y^3}{2xy^2 \cdot -x^3y^3}$$

$$\frac{1}{xy^2}$$

$$10) \frac{2x^2}{3x^2y^3 \cdot x^2} - \frac{2}{3x^2y^3}$$

$$11) (-u^4v^3)^3 \cdot 2v^2 \cdot 2u^5v^4$$

$$-4u^{17}v^{15}$$

$$12) (-2x^5y^0)^3 \cdot -x^5$$

$$8x^{20}$$

$$13) -2x^2y^4 \cdot (-x)^3$$

$$2x^5y^4$$

$$14) (2u^5v^5)^4 \cdot (2u^4v^5)^5$$

$$512u^{40}v^{45}$$

$$15) (-y^4)^0 \cdot xy$$

$$xy$$

$$16) (2x^5y^3 \cdot x)^5$$

$$32x^{30}y^{15}$$

$$17) (-2x^4y^4 \cdot 2xy^3)^2 \cdot -2x^0y^5$$

$$-32x^{10}y^{19}$$

$$18) (-2ba^5 \cdot 2a^3)^5$$

$$-1024b^5a^{40}$$

$$19) \left(\frac{m^0p^0 \cdot pm^4n^3}{nm^4} \right)^3$$

$$p^3n^6$$

$$20) \frac{(-r^4)^2}{-2p^4q^4r^4 \cdot -p^2q^4r^2} \frac{r^2}{2p^6q^8}$$

$$21) -\frac{mp^2q^4 \cdot -2m^3p^4q^4}{(-2m^3q^4)^4}$$

$$\frac{p^6}{8m^8q^8}$$

$$22) -\frac{2abc^2}{(2b^4c^2)^4 \cdot -a^3b^3c^4} \frac{1}{8b^{18}c^{10}a^2}$$

$$23) -\frac{xyz}{(-2x^3y^4z^3 \cdot 2x^3z^2)^3} \frac{1}{64x^{17}y^{11}z^{14}}$$

$$24) \frac{(2zx^4y^4 \cdot x^4y^4)^4}{-2x^2y^4z^2}$$

$$-8z^2x^{30}y^{28}$$

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Simplify. Your answer should contain only positive exponents.

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

2)
$$\frac{-2y \cdot 3x^3 y^0}{-3x^2}$$

3)
$$\frac{mn \cdot 3mn^3}{mn}$$

4)
$$\frac{2x^2 \cdot -y^2}{3xy^0}$$

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

6)
$$-\frac{x^3 \cdot -x^3 y^3 \cdot xy^0}{3yx^3}$$

7)
$$\frac{-2y \cdot 3y}{-2x^2 y^3}$$

8)
$$-\frac{3yx^3 \cdot yx^3}{2x}$$

9)
$$-\frac{2nm^3}{2m^2 n^3 \cdot -2m^3 n^2}$$

10)
$$\frac{a^2 b^2}{ba^0 \cdot 2a^2 b^3}$$

11)
$$(u^4 v^4 \cdot v)^5$$

12)
$$u^0 v^4 \cdot (-2v^0)^5$$

13) $(2b^4 \cdot 2ba^3)^4$

14) $-y^5 \cdot 2x^2 \cdot (-y^2)^4$

15) $(-x^2y^4)^5 \cdot -2x^0y^4 \cdot -y^4$

16) $(-2x^4)^2 \cdot -xy^5$

17) $-m^2n^5 \cdot (-m^4n^3)^2$

18) $v^5 \cdot u^2 \cdot -u^5$

19) $\frac{(bc^0 \cdot bca^3)^3}{2b^3}$

20) $\left(-\frac{2hk^2}{kh^4j^4 \cdot (-h^4k^2)^4}\right)^3$

21) $\frac{(ab^4c^0)^0}{-2a^4b^4c^3 \cdot b^3}$

22) $\frac{(-x^2y^3z^2)^2}{2x^3y^4 \cdot 2x}$

23) $\frac{(-mp^3q^3)^4 \cdot -qm^2}{2m^3q^0 \cdot 2mp^4q^2}$

24) $\left(\frac{-m^0n^3p^2}{-2npm^0 \cdot 2nm^4p^3}\right)^3$

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Simplify. Your answer should contain only positive exponents.

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

$$x^4 y^4$$

2)
$$\frac{-2y \cdot 3x^3 y^0}{-3x^2}$$

$$2yx$$

3)
$$\frac{mn \cdot 3mn^3}{mn}$$

$$3mn^3$$

4)
$$\frac{2x^2 \cdot -y^2}{3xy^0}$$

$$-\frac{2xy^2}{3}$$

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

$$\frac{3x^2 y}{2}$$

6)
$$-\frac{x^3 \cdot -x^3 y^3 \cdot xy^0}{3yx^3}$$

$$\frac{x^4 y^2}{3}$$

7)
$$\frac{-2y \cdot 3y}{-2x^2 y^3}$$

$$\frac{3}{x^2 y}$$

8)
$$-\frac{3yx^3 \cdot yx^3}{2x}$$

$$-\frac{3y^2 x^5}{2}$$

9)
$$-\frac{2nm^3}{2m^2 n^3 \cdot -2m^3 n^2}$$

$$\frac{1}{2m^2 n^4}$$

10)
$$\frac{a^2 b^2}{ba^0 \cdot 2a^2 b^3}$$

$$\frac{1}{2b^2}$$

11)
$$(u^4 v^4 \cdot v)^5$$

$$u^{20} v^{25}$$

12)
$$u^0 v^4 \cdot (-2v^0)^5$$

$$-32v^4$$

$$13) (2b^4 \cdot 2ba^3)^4$$

$$256b^{20}a^{12}$$

$$14) -y^5 \cdot 2x^2 \cdot (-y^2)^4$$

$$-2y^{13}x^2$$

$$15) (-x^2y^4)^5 \cdot -2x^0y^4 \cdot -y^4$$

$$-2x^{10}y^{28}$$

$$16) (-2x^4)^2 \cdot -xy^5$$

$$-4x^9y^5$$

$$17) -m^2n^5 \cdot (-m^4n^3)^2$$

$$-m^{10}n^{11}$$

$$18) v^5 \cdot u^2 \cdot -u^5$$

$$-v^5u^7$$

$$19) \frac{(bc^0 \cdot bca^3)^3}{2b^3}$$

$$\frac{b^3c^3a^9}{2}$$

$$20) \left(-\frac{2hk^2}{kh^4j^4 \cdot (-h^4k^2)^4} \right)^3$$

$$-\frac{8}{k^{21}h^{57}j^{12}}$$

$$21) \frac{(ab^4c^0)^0}{-2a^4b^4c^3 \cdot b^3}$$

$$-\frac{1}{2a^4b^7c^3}$$

$$22) \frac{(-x^2y^3z^2)^2}{2x^3y^4 \cdot 2x}$$

$$\frac{y^2z^4}{4}$$

$$23) \frac{(-mp^3q^3)^4 \cdot -qm^2}{2m^3q^0 \cdot 2mp^4q^2}$$

$$-\frac{m^2p^8q^{11}}{4}$$

$$24) \left(\frac{-m^0n^3p^2}{-2npm^0 \cdot 2nm^4p^3} \right)^3$$

$$\frac{n^3}{64p^6m^{12}}$$

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Simplify. Your answer should contain only positive exponents.

1) $-\frac{3u^2v^2}{2v^2 \cdot -3uv^0}$

2) $\frac{2vu^2 \cdot -3vu^2}{-u}$

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

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

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

6) $\frac{mn^3}{-mn^2 \cdot -m^2n^2}$

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

8) $-\frac{3x^3 \cdot 2x^2y^3}{y^2}$

9) $\frac{2a}{-3b^3 \cdot -2b^2}$

10) $-\frac{a^3b^3 \cdot -3ba^3}{a^2b^3}$

11) $(n^5)^3 \cdot -2m$

12) $-x^5y^3 \cdot (x^3)^5$

13) $(2x^2y^3)^2 \cdot -x^2y^3$

14) $(2m^3n^5)^0 \cdot -2n$

15) $(u^4)^2 \cdot -2u^3$

16) $((2m^5)^3 \cdot mn^5)^2$

17) $(x^4 \cdot -2x^3y^0)^4$

18) $(2m^5n^0 \cdot m^5n^0)^4$

19) $\frac{x^3y^2}{(-zx^0)^3 \cdot -2z^2}$

20) $\left(\frac{x^3y^3z^4 \cdot x^3}{x^4y^3z^4}\right)^3$

21) $\left(\frac{2m^4n^0p^2 \cdot -2n^4}{-2m^3n^2p^3}\right)^2$

22) $\left(-\frac{x^3y^4z^3}{2y^3z^2 \cdot -x^2z^2}\right)^3$

23) $\frac{(2xy^3z^3 \cdot yz^4)^4}{-2x^2y^3z^2}$

24) $\frac{-2x^3z^4}{-2x^2y^3z^4 \cdot (-yx^3z^2)^0}$

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Simplify. Your answer should contain only positive exponents.

1)
$$-\frac{3u^2v^2}{2v^2 \cdot -3uv^0}$$

$$\frac{u}{2}$$

2)
$$\frac{2vu^2 \cdot -3vu^2}{-u}$$

$$6v^2u^3$$

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

$$\frac{1}{2yx^2}$$

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

$$-y^3$$

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

$$-x^4$$

6)
$$\frac{mn^3}{-mn^2 \cdot -m^2n^2}$$

$$\frac{1}{m^2n}$$

7)
$$-\frac{3x^2}{y^3 \cdot 3xy^2}$$

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

8)
$$-\frac{3x^3 \cdot 2x^2y^3}{y^2}$$

$$-6x^5y$$

9)
$$\frac{2a}{-3b^3 \cdot -2b^2}$$

$$\frac{a}{3b^5}$$

10)
$$-\frac{a^3b^3 \cdot -3ba^3}{a^2b^3}$$

$$3a^4b$$

11)
$$(n^5)^3 \cdot -2m$$

$$-2n^{15}m$$

12)
$$-x^5y^3 \cdot (x^3)^5$$

$$-x^{20}y^3$$

$$13) (2x^2y^3)^2 \cdot -x^2y^3$$

$$-4x^6y^9$$

$$14) (2m^3n^5)^0 \cdot -2n$$

$$-2n$$

$$15) (u^4)^2 \cdot -2u^3$$

$$-2u^{11}$$

$$16) ((2m^5)^3 \cdot mn^5)^2$$

$$64m^{32}n^{10}$$

$$17) (x^4 \cdot -2x^3y^0)^4$$

$$16x^{28}$$

$$18) (2m^5n^0 \cdot m^5n^0)^4$$

$$16m^{40}$$

$$19) \frac{x^3y^2}{(-zx^0)^3 \cdot -2z^2}$$

$$\frac{x^3y^2}{2z^5}$$

$$20) \left(\frac{x^3y^3z^4 \cdot x^3}{x^4y^3z^4} \right)^3$$

$$x^6$$

$$21) \left(\frac{2m^4n^0p^2 \cdot -2n^4}{-2m^3n^2p^3} \right)^2$$

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

$$22) \left(-\frac{x^3y^4z^3}{2y^3z^2 \cdot -x^2z^2} \right)^3$$

$$\frac{x^3y^3}{8z^3}$$

$$23) \frac{(2xy^3z^3 \cdot yz^4)^4}{-2x^2y^3z^2}$$

$$-8x^2y^{13}z^{26}$$

$$24) \frac{-2x^3z^4}{-2x^2y^3z^4 \cdot (-yx^3z^2)^0}$$

$$\frac{x}{y^3}$$

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Simplify. Your answer should contain only positive exponents.

1) $-\frac{3u^3v^2 \cdot -3v}{2u^3}$

2) $\frac{2yx^3 \cdot 2yx^3}{3x^0y^3}$

3) $-\frac{x^0y^3 \cdot -3x^2y^2}{2x^2y^3}$

4) $\frac{-3uv^3}{-3vu^2 \cdot 2vu^3}$

5) $-\frac{xy^2}{2xy \cdot 2y^2}$

6) $\frac{3uv^0 \cdot u^3v^2}{3u}$

7) $\frac{-2x^2y^3 \cdot 2x^3y^2}{-2x^0y^2}$

8) $\frac{3y \cdot -x^3y^3}{-3xy^3}$

9) $-\frac{3x^2y^0 \cdot -2xy}{3xy^3 \cdot 2yx^0}$

10) $\frac{3x^3y^2 \cdot 3x^2y^3}{-y}$

11) $(2u^5v^5)^3 \cdot (uv^2)^3$

12) $(-2x^4y^5)^5 \cdot x^0y^3$

13) $-y \cdot (-2y^2)^0$

14) $(x^2y^0 \cdot -y^0)^2$

15) $x^0y^0 \cdot (x^3y^2)^3$

16) $2a^2b^0 \cdot (-2ba^0)^4$

17) $-x^4 \cdot (-x^4y^4 \cdot -xy^3)^5$

18) $(xy^3)^4 \cdot -xy^2$

19) $\frac{x^4y^2}{(2y^3z^0 \cdot yx^2)^0}$

20) $\left(\frac{2a^4b^3 \cdot -a^4b^3c^4}{2a^0b^2c^2 \cdot -2ab^0c^4}\right)^3$

21) $-\frac{2qm^4 \cdot qp^0}{(-m^2q^4)^3}$

22) $-\frac{zx^2 \cdot -zy^3}{(-yx^3z^0)^2}$

23) $-\frac{2x^3z^3 \cdot x^4y^4}{(-2x^2)^3}$

24) $\left(\frac{2pm^4q^2 \cdot m^2p^4q^3}{-2m^2p^3 \cdot 2m^3p^4}\right)^3$

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1)
$$-\frac{3u^3v^2 \cdot -3v}{2u^3}$$

$$\frac{9v^3}{2}$$

2)
$$\frac{2yx^3 \cdot 2yx^3}{3x^0y^3}$$

$$\frac{4x^6}{3y}$$

3)
$$-\frac{x^0y^3 \cdot -3x^2y^2}{2x^2y^3}$$

$$\frac{3y^2}{2}$$

4)
$$\frac{-3uv^3}{-3vu^2 \cdot 2vu^3}$$

$$\frac{v}{2u^4}$$

5)
$$-\frac{xy^2}{2xy \cdot 2y^2}$$

$$-\frac{1}{4y}$$

6)
$$\frac{3uv^0 \cdot u^3v^2}{3u}$$

$$u^3v^2$$

7)
$$\frac{-2x^2y^3 \cdot 2x^3y^2}{-2x^0y^2}$$

$$2x^5y^3$$

8)
$$\frac{3y \cdot -x^3y^3}{-3xy^3}$$

$$yx^2$$

9)
$$-\frac{3x^2y^0 \cdot -2xy}{3xy^3 \cdot 2yx^0}$$

$$\frac{x^2}{y^3}$$

10)
$$\frac{3x^3y^2 \cdot 3x^2y^3}{-y}$$

$$-9x^5y^4$$

11)
$$(2u^5v^5)^3 \cdot (uv^2)^3$$

$$8u^{18}v^{21}$$

12)
$$(-2x^4y^5)^5 \cdot x^0y^3$$

$$-32x^{20}y^{28}$$

$$13) -y \cdot (-2y^2)^0$$

$$-y$$

$$14) (x^2y^0 \cdot -y^0)^2$$

$$x^4$$

$$15) x^0y^0 \cdot (x^3y^2)^3$$

$$x^9y^6$$

$$16) 2a^2b^0 \cdot (-2ba^0)^4$$

$$32a^2b^4$$

$$17) -x^4 \cdot (-x^4y^4 \cdot -xy^3)^5$$

$$-x^{29}y^{35}$$

$$18) (xy^3)^4 \cdot -xy^2$$

$$-x^5y^{14}$$

$$19) \frac{x^4y^2}{(2y^3z^0 \cdot yx^2)^0}$$

$$x^4y^2$$

$$20) \left(\frac{2a^4b^3 \cdot -a^4b^3c^4}{2a^0b^2c^2 \cdot -2ab^0c^4} \right)^3$$

$$\frac{a^{21}b^{12}}{8c^6}$$

$$21) -\frac{2qm^4 \cdot qp^0}{(-m^2q^4)^3}$$

$$\frac{2}{m^2q^{10}}$$

$$22) -\frac{zx^2 \cdot -zy^3}{(-yx^3z^0)^2}$$

$$\frac{z^2y}{x^4}$$

$$23) -\frac{2x^3z^3 \cdot x^4y^4}{(-2x^2)^3}$$

$$\frac{xz^3y^4}{4}$$

$$24) \left(\frac{2pm^4q^2 \cdot m^2p^4q^3}{-2m^2p^3 \cdot 2m^3p^4} \right)^3$$

$$-\frac{m^3q^{15}}{8p^6}$$