

## Simplifying Expressions (A)

Simplify each expression.

1.  $-z \cdot (-4z^2) \cdot 6z^2 \cdot z^2$

6.  $-3v \cdot 4v^2 \cdot (-1) \cdot 7v$

2.  $8 \cdot 6 \cdot a^2 \cdot (-1)$

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

3.  $y \cdot y^2 \cdot \left(-\frac{2y^2}{-y}\right)$

8.  $x \cdot x \cdot (-x^2) \cdot 5x$

4.  $-\frac{2c^2}{2c} \cdot (-5c) \cdot c^2$

9.  $\frac{a^4}{a^2 \cdot (-1)} \cdot (-9a)$

5.  $z^2 \cdot z \cdot (-1) \cdot (-z^2)$

10.  $5z \cdot (-5) \cdot z \cdot z^2$

## Simplifying Expressions (A) Answers

Simplify each expression.

$$\begin{aligned} 1. & -z \cdot (-4z^2) \cdot 6z^2 \cdot z^2 \\ & = 24z^7 \end{aligned}$$

$$\begin{aligned} 6. & -3v \cdot 4v^2 \cdot (-1) \cdot 7v \\ & = 84v^4 \end{aligned}$$

$$\begin{aligned} 2. & 8 \cdot 6 \cdot a^2 \cdot (-1) \\ & = -48a^2 \end{aligned}$$

$$\begin{aligned} 7. & \frac{2y^3}{-y^2} \cdot (-y^2) \cdot (-y^2) \\ & = -2y^5 \end{aligned}$$

$$\begin{aligned} 3. & y \cdot y^2 \cdot \left(-\frac{2y^2}{-y}\right) \\ & = 2y^4 \end{aligned}$$

$$\begin{aligned} 8. & x \cdot x \cdot (-x^2) \cdot 5x \\ & = -5x^5 \end{aligned}$$

$$\begin{aligned} 4. & -\frac{2c^2}{2c} \cdot (-5c) \cdot c^2 \\ & = 5c^4 \end{aligned}$$

$$\begin{aligned} 9. & \frac{a^4}{a^2 \cdot (-1)} \cdot (-9a) \\ & = 9a^3 \end{aligned}$$

$$\begin{aligned} 5. & z^2 \cdot z \cdot (-1) \cdot (-z^2) \\ & = z^5 \end{aligned}$$

$$\begin{aligned} 10. & 5z \cdot (-5) \cdot z \cdot z^2 \\ & = -25z^4 \end{aligned}$$

## Simplifying Expressions (B)

Simplify each expression.

$$1. -\frac{3u^6}{3u^2 \cdot (-u^2)} \cdot (-10)$$

$$6. -z^2 \cdot 6z \cdot 4 \cdot z^2$$

$$2. -1 \cdot 3y^2 \cdot y^2 \cdot (-7y^2)$$

$$7. \frac{8u^2}{8u} \cdot u \cdot u^2$$

$$3. -\frac{24c^4}{-6c^2} \cdot (-5) \cdot (-4c^2)$$

$$8. -8b \cdot b^2 \cdot (-b^2) \cdot 8b^2$$

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

$$9. -v^2 \cdot (-8v^2) \cdot 8v^2 \cdot (-9v)$$

$$5. 7z \cdot 10z \cdot 5z \cdot z$$

$$10. 4 \cdot \frac{v^4}{v \cdot (-v^2)}$$

## Simplifying Expressions (B) Answers

Simplify each expression.

$$\begin{aligned} 1. & -\frac{3u^6}{3u^2 \cdot (-u^2)} \cdot (-10) \\ & = -10u^2 \end{aligned}$$

$$\begin{aligned} 6. & -z^2 \cdot 6z \cdot 4 \cdot z^2 \\ & = -24z^5 \end{aligned}$$

$$\begin{aligned} 2. & -1 \cdot 3y^2 \cdot y^2 \cdot (-7y^2) \\ & = 21y^6 \end{aligned}$$

$$\begin{aligned} 7. & \frac{8u^2}{8u} \cdot u \cdot u^2 \\ & = u^4 \end{aligned}$$

$$\begin{aligned} 3. & -\frac{24c^4}{-6c^2} \cdot (-5) \cdot (-4c^2) \\ & = 80c^4 \end{aligned}$$

$$\begin{aligned} 8. & -8b \cdot b^2 \cdot (-b^2) \cdot 8b^2 \\ & = 64b^7 \end{aligned}$$

$$\begin{aligned} 4. & \frac{b^4}{-1 \cdot (-1) \cdot (-b^2)} \\ & = -b^2 \end{aligned}$$

$$\begin{aligned} 9. & -v^2 \cdot (-8v^2) \cdot 8v^2 \cdot (-9v) \\ & = -576v^7 \end{aligned}$$

$$\begin{aligned} 5. & 7z \cdot 10z \cdot 5z \cdot z \\ & = 350z^4 \end{aligned}$$

$$\begin{aligned} 10. & 4 \cdot \frac{v^4}{v \cdot (-v^2)} \\ & = -4v \end{aligned}$$

## Simplifying Expressions (C)

Simplify each expression.

1.  $-\frac{30v^3}{3v \cdot 10v} \cdot 5v$

6.  $-8y^2 \cdot (-1) \cdot 7y \cdot (-y)$

2.  $\frac{35c^2}{7c^2} \cdot c \cdot c$

7.  $\frac{x^2}{x \cdot (-1) \cdot (-1)}$

3.  $5u \cdot 5 \cdot u^2 \cdot (-1)$

8.  $-3a^2 \cdot a^2 \cdot 3a \cdot 7a$

4.  $-9u^2 \cdot (-1) \cdot \frac{4u}{4}$

9.  $-5a \cdot (-2) \cdot a \cdot 8a^2$

5.  $y \cdot \frac{7y^4}{7y^2} \cdot 10y$

10.  $-\frac{z}{-z} \cdot (-z) \cdot 8z^2$

## Simplifying Expressions (C) Answers

Simplify each expression.

$$\begin{aligned} 1. & -\frac{30v^3}{3v \cdot 10v} \cdot 5v \\ & = -5v^2 \end{aligned}$$

$$\begin{aligned} 6. & -8y^2 \cdot (-1) \cdot 7y \cdot (-y) \\ & = -56y^4 \end{aligned}$$

$$\begin{aligned} 2. & \frac{35c^2}{7c^2} \cdot c \cdot c \\ & = 5c^2 \end{aligned}$$

$$\begin{aligned} 7. & \frac{x^2}{x \cdot (-1) \cdot (-1)} \\ & = x \end{aligned}$$

$$\begin{aligned} 3. & 5u \cdot 5 \cdot u^2 \cdot (-1) \\ & = -25u^3 \end{aligned}$$

$$\begin{aligned} 8. & -3a^2 \cdot a^2 \cdot 3a \cdot 7a \\ & = -63a^6 \end{aligned}$$

$$\begin{aligned} 4. & -9u^2 \cdot (-1) \cdot \frac{4u}{4} \\ & = 9u^3 \end{aligned}$$

$$\begin{aligned} 9. & -5a \cdot (-2) \cdot a \cdot 8a^2 \\ & = 80a^4 \end{aligned}$$

$$\begin{aligned} 5. & y \cdot \frac{7y^4}{7y^2} \cdot 10y \\ & = 10y^4 \end{aligned}$$

$$\begin{aligned} 10. & -\frac{z}{-z} \cdot (-z) \cdot 8z^2 \\ & = -8z^3 \end{aligned}$$

## Simplifying Expressions (D)

Simplify each expression.

1.  $-4a^2 \cdot a^2 \cdot \left(-\frac{9a^4}{-9a^2}\right)$

6.  $6y^2 \cdot \frac{54y^2}{-9} \cdot (-3y^2)$

2.  $-8 \cdot (-x) \cdot \frac{9x^2}{3x^2}$

7.  $-\frac{60x^6}{10x^2 \cdot (-x^2)} \cdot x^2$

3.  $7z^2 \cdot 7 \cdot z \cdot 9z^2$

8.  $-2b^2 \cdot \left(-\frac{54b^3}{9b^2 \cdot (-2b)}\right)$

4.  $-4x^2 \cdot x \cdot (-10x^2) \cdot x^2$

9.  $-1 \cdot y^2 \cdot y^2 \cdot (-9)$

5.  $8 \cdot \frac{48v^2}{6} \cdot 9v^2$

10.  $-5z \cdot \frac{z^2}{z^2} \cdot z^2$

## Simplifying Expressions (D) Answers

Simplify each expression.

$$\begin{aligned} 1. & -4a^2 \cdot a^2 \cdot \left(-\frac{9a^4}{-9a^2}\right) \\ & = -4a^6 \end{aligned}$$

$$\begin{aligned} 6. & 6y^2 \cdot \frac{54y^2}{-9} \cdot (-3y^2) \\ & = 108y^6 \end{aligned}$$

$$\begin{aligned} 2. & -8 \cdot (-x) \cdot \frac{9x^2}{3x^2} \\ & = 24x \end{aligned}$$

$$\begin{aligned} 7. & -\frac{60x^6}{10x^2 \cdot (-x^2)} \cdot x^2 \\ & = 6x^4 \end{aligned}$$

$$\begin{aligned} 3. & 7z^2 \cdot 7 \cdot z \cdot 9z^2 \\ & = 441z^5 \end{aligned}$$

$$\begin{aligned} 8. & -2b^2 \cdot \left(-\frac{54b^3}{9b^2 \cdot (-2b)}\right) \\ & = -6b^2 \end{aligned}$$

$$\begin{aligned} 4. & -4x^2 \cdot x \cdot (-10x^2) \cdot x^2 \\ & = 40x^7 \end{aligned}$$

$$\begin{aligned} 9. & -1 \cdot y^2 \cdot y^2 \cdot (-9) \\ & = 9y^4 \end{aligned}$$

$$\begin{aligned} 5. & 8 \cdot \frac{48v^2}{6} \cdot 9v^2 \\ & = 576v^4 \end{aligned}$$

$$\begin{aligned} 10. & -5z \cdot \frac{z^2}{z^2} \cdot z^2 \\ & = -5z^3 \end{aligned}$$



## Simplifying Expressions (E)

Simplify each expression.

1.  $-\frac{x^3}{x} \cdot (-x) \cdot 9x^2$

6.  $-1 \cdot v^2 \cdot \frac{9v^3}{v}$

2.  $-\frac{6a^4}{6a \cdot (-1) \cdot a}$

7.  $\frac{c^4}{c^2} \cdot 7 \cdot c$

3.  $-\frac{2a^5}{a \cdot 2a^2} \cdot 10a$

8.  $z \cdot (-2z) \cdot z^2 \cdot z^2$

4.  $-x \cdot \left(-\frac{3x}{-1}\right) \cdot (-x)$

9.  $u^2 \cdot (-3u^2) \cdot \frac{2}{-1}$

5.  $-6v \cdot \frac{21v^3}{-3v^2 \cdot (-v)}$

10.  $-\frac{120z^4}{3z \cdot 5z} \cdot (-8z)$

## Simplifying Expressions (E) Answers

Simplify each expression.

$$\begin{aligned} 1. & -\frac{x^3}{x} \cdot (-x) \cdot 9x^2 \\ & = 9x^5 \end{aligned}$$

$$\begin{aligned} 6. & -1 \cdot v^2 \cdot \frac{9v^3}{v} \\ & = -9v^4 \end{aligned}$$

$$\begin{aligned} 2. & -\frac{6a^4}{6a \cdot (-1) \cdot a} \\ & = a^2 \end{aligned}$$

$$\begin{aligned} 7. & \frac{c^4}{c^2} \cdot 7 \cdot c \\ & = 7c^3 \end{aligned}$$

$$\begin{aligned} 3. & -\frac{2a^5}{a \cdot 2a^2} \cdot 10a \\ & = -10a^3 \end{aligned}$$

$$\begin{aligned} 8. & z \cdot (-2z) \cdot z^2 \cdot z^2 \\ & = -2z^6 \end{aligned}$$

$$\begin{aligned} 4. & -x \cdot \left(-\frac{3x}{-1}\right) \cdot (-x) \\ & = 3x^3 \end{aligned}$$

$$\begin{aligned} 9. & u^2 \cdot (-3u^2) \cdot \frac{2}{-1} \\ & = 6u^4 \end{aligned}$$

$$\begin{aligned} 5. & -6v \cdot \frac{21v^3}{-3v^2 \cdot (-v)} \\ & = -42v \end{aligned}$$

$$\begin{aligned} 10. & -\frac{120z^4}{3z \cdot 5z} \cdot (-8z) \\ & = 64z^3 \end{aligned}$$

## Simplifying Expressions (F)

Simplify each expression.

1.  $8 \cdot \left( -\frac{2u^5}{u^2 \cdot u^2} \right)$

6.  $-v^2 \cdot (-8v^2) \cdot 8v^2 \cdot v$

2.  $-z \cdot 3 \cdot 5z \cdot z$

7.  $\frac{2x^2}{2x} \cdot (-x^2) \cdot x$

3.  $-1 \cdot \frac{4y^4}{4 \cdot y^2}$

8.  $8u \cdot (-u) \cdot \frac{2}{-1}$

4.  $-\frac{v^4}{-v^2} \cdot 5v \cdot 8v$

9.  $z \cdot \frac{5z^4}{5z^2} \cdot (-1)$

5.  $-\frac{z^7}{z^2 \cdot z \cdot (-z^2)}$

10.  $10 \cdot \frac{72a^2}{9} \cdot a$

## Simplifying Expressions (F) Answers

Simplify each expression.

$$1. 8 \cdot \left( -\frac{2u^5}{u^2 \cdot u^2} \right) \\ = -16u$$

$$6. -v^2 \cdot (-8v^2) \cdot 8v^2 \cdot v \\ = 64v^7$$

$$2. -z \cdot 3 \cdot 5z \cdot z \\ = -15z^3$$

$$7. \frac{2x^2}{2x} \cdot (-x^2) \cdot x \\ = -x^4$$

$$3. -1 \cdot \frac{4y^4}{4 \cdot y^2} \\ = -y^2$$

$$8. 8u \cdot (-u) \cdot \frac{2}{-1} \\ = 16u^2$$

$$4. -\frac{v^4}{-v^2} \cdot 5v \cdot 8v \\ = 40v^4$$

$$9. z \cdot \frac{5z^4}{5z^2} \cdot (-1) \\ = -z^3$$

$$5. -\frac{z^7}{z^2 \cdot z \cdot (-z^2)} \\ = z^2$$

$$10. 10 \cdot \frac{72a^2}{9} \cdot a \\ = 80a^3$$

## Simplifying Expressions (G)

Simplify each expression.

1.  $-\frac{a^3}{a^2} \cdot 6a^2 \cdot (-10)$

6.  $8 \cdot (-u) \cdot \frac{u^4}{u^2}$

2.  $5c^2 \cdot c^2 \cdot c \cdot (-1)$

7.  $-10u \cdot (-4) \cdot u^2 \cdot (-u^2)$

3.  $u \cdot \frac{u}{u} \cdot (-1)$

8.  $4 \cdot (-10) \cdot (-z^2) \cdot 8z^2$

4.  $7c^2 \cdot 4c \cdot 9c \cdot 2$

9.  $\frac{5x^6}{-x \cdot (-5x) \cdot x^2}$

5.  $-6 \cdot (-c^2) \cdot c \cdot c$

10.  $\frac{24v^3}{v \cdot 8v} \cdot v$

## Simplifying Expressions (G) Answers

Simplify each expression.

$$\begin{aligned} 1. & -\frac{a^3}{a^2} \cdot 6a^2 \cdot (-10) \\ & = 60a^3 \end{aligned}$$

$$\begin{aligned} 6. & 8 \cdot (-u) \cdot \frac{u^4}{u^2} \\ & = -8u^3 \end{aligned}$$

$$\begin{aligned} 2. & 5c^2 \cdot c^2 \cdot c \cdot (-1) \\ & = -5c^5 \end{aligned}$$

$$\begin{aligned} 7. & -10u \cdot (-4) \cdot u^2 \cdot (-u^2) \\ & = -40u^5 \end{aligned}$$

$$\begin{aligned} 3. & u \cdot \frac{u}{u} \cdot (-1) \\ & = -u \end{aligned}$$

$$\begin{aligned} 8. & 4 \cdot (-10) \cdot (-z^2) \cdot 8z^2 \\ & = 320z^4 \end{aligned}$$

$$\begin{aligned} 4. & 7c^2 \cdot 4c \cdot 9c \cdot 2 \\ & = 504c^4 \end{aligned}$$

$$\begin{aligned} 9. & \frac{5x^6}{-x \cdot (-5x) \cdot x^2} \\ & = x^2 \end{aligned}$$

$$\begin{aligned} 5. & -6 \cdot (-c^2) \cdot c \cdot c \\ & = 6c^4 \end{aligned}$$

$$\begin{aligned} 10. & \frac{24v^3}{v \cdot 8v} \cdot v \\ & = 3v^2 \end{aligned}$$

## Simplifying Expressions (H)

Simplify each expression.

1.  $-9a \cdot 2 \cdot 3 \cdot a^2$

6.  $-x^2 \cdot \frac{30x^3}{5x \cdot x}$

2.  $z \cdot (-6z^2) \cdot 7z \cdot z$

7.  $-5 \cdot (-y^2) \cdot 8 \cdot y^2$

3.  $6y \cdot y^2 \cdot 3y^2 \cdot 3y^2$

8.  $-1 \cdot c \cdot (-9) \cdot (-2c)$

4.  $7 \cdot x \cdot x^2 \cdot 7x$

9.  $-4x \cdot (-5x^2) \cdot 8x \cdot (-4x)$

5.  $-z \cdot (-1) \cdot 9 \cdot (-9z)$

10.  $-a^2 \cdot \left( -\frac{2a^5}{-2a^2 \cdot a} \right)$

## Simplifying Expressions (H) Answers

Simplify each expression.

$$\begin{aligned} 1. & -9a \cdot 2 \cdot 3 \cdot a^2 \\ & = -54a^3 \end{aligned}$$

$$\begin{aligned} 6. & -x^2 \cdot \frac{30x^3}{5x \cdot x} \\ & = -6x^3 \end{aligned}$$

$$\begin{aligned} 2. & z \cdot (-6z^2) \cdot 7z \cdot z \\ & = -42z^5 \end{aligned}$$

$$\begin{aligned} 7. & -5 \cdot (-y^2) \cdot 8 \cdot y^2 \\ & = 40y^4 \end{aligned}$$

$$\begin{aligned} 3. & 6y \cdot y^2 \cdot 3y^2 \cdot 3y^2 \\ & = 54y^7 \end{aligned}$$

$$\begin{aligned} 8. & -1 \cdot c \cdot (-9) \cdot (-2c) \\ & = -18c^2 \end{aligned}$$

$$\begin{aligned} 4. & 7 \cdot x \cdot x^2 \cdot 7x \\ & = 49x^4 \end{aligned}$$

$$\begin{aligned} 9. & -4x \cdot (-5x^2) \cdot 8x \cdot (-4x) \\ & = -640x^5 \end{aligned}$$

$$\begin{aligned} 5. & -z \cdot (-1) \cdot 9 \cdot (-9z) \\ & = -81z^2 \end{aligned}$$

$$\begin{aligned} 10. & -a^2 \cdot \left( -\frac{2a^5}{-2a^2 \cdot a} \right) \\ & = -a^4 \end{aligned}$$



## Simplifying Expressions (I)

Simplify each expression.

$$1. \frac{56z^7}{z \cdot (-7z^2) \cdot 8z^2}$$

$$6. 2x^2 \cdot 7x \cdot \frac{8x^2}{8x}$$

$$2. -4z^2 \cdot (-3z^2) \cdot (-z^2) \cdot z^2$$

$$7. -\frac{21x^2}{x^2 \cdot 3} \cdot x$$

$$3. 2v^2 \cdot \left(-\frac{12v}{3v}\right) \cdot v^2$$

$$8. -1 \cdot \left(-\frac{30v^2}{-10}\right) \cdot v^2$$

$$4. -a^2 \cdot \frac{a^2}{a} \cdot a$$

$$9. 8 \cdot 2u^2 \cdot \frac{5u^3}{5u}$$

$$5. \frac{10b^3}{10b^2} \cdot (-1) \cdot (-b^2)$$

$$10. -b \cdot \frac{9b^2}{b} \cdot b^2$$

## Simplifying Expressions (I) Answers

Simplify each expression.

$$1. \frac{56z^7}{z \cdot (-7z^2) \cdot 8z^2} \\ = -z^2$$

$$6. 2x^2 \cdot 7x \cdot \frac{8x^2}{8x} \\ = 14x^4$$

$$2. -4z^2 \cdot (-3z^2) \cdot (-z^2) \cdot z^2 \\ = -12z^8$$

$$7. -\frac{21x^2}{x^2 \cdot 3} \cdot x \\ = -7x$$

$$3. 2v^2 \cdot \left(-\frac{12v}{3v}\right) \cdot v^2 \\ = -8v^4$$

$$8. -1 \cdot \left(-\frac{30v^2}{-10}\right) \cdot v^2 \\ = -3v^4$$

$$4. -a^2 \cdot \frac{a^2}{a} \cdot a \\ = -a^4$$

$$9. 8 \cdot 2u^2 \cdot \frac{5u^3}{5u} \\ = 16u^4$$

$$5. \frac{10b^3}{10b^2} \cdot (-1) \cdot (-b^2) \\ = b^3$$

$$10. -b \cdot \frac{9b^2}{b} \cdot b^2 \\ = -9b^4$$

## Simplifying Expressions (J)

Simplify each expression.

1.  $-\frac{3b^3}{-3b} \cdot (-4b^2) \cdot 10$

6.  $b^2 \cdot (-8) \cdot (-b) \cdot (-b)$

2.  $u^2 \cdot \frac{u^3}{u^2} \cdot u^2$

7.  $v^2 \cdot 9 \cdot v^2 \cdot (-2v^2)$

3.  $v \cdot v \cdot \left(-\frac{8v^2}{8}\right)$

8.  $b^2 \cdot \frac{b^2}{b} \cdot (-8)$

4.  $-\frac{20x^7}{-x^2 \cdot 4x \cdot 5x^2}$

9.  $-\frac{2z^4}{-z^2} \cdot 8z^2 \cdot z$

5.  $-\frac{2y^5}{y^2 \cdot y} \cdot (-8y^2)$

10.  $-1 \cdot c \cdot 5 \cdot 3$

## Simplifying Expressions (J) Answers

Simplify each expression.

$$\begin{aligned} 1. & -\frac{3b^3}{-3b} \cdot (-4b^2) \cdot 10 \\ & = -40b^4 \end{aligned}$$

$$\begin{aligned} 6. & b^2 \cdot (-8) \cdot (-b) \cdot (-b) \\ & = -8b^4 \end{aligned}$$

$$\begin{aligned} 2. & u^2 \cdot \frac{u^3}{u^2} \cdot u^2 \\ & = u^5 \end{aligned}$$

$$\begin{aligned} 7. & v^2 \cdot 9 \cdot v^2 \cdot (-2v^2) \\ & = -18v^6 \end{aligned}$$

$$\begin{aligned} 3. & v \cdot v \cdot \left(-\frac{8v^2}{8}\right) \\ & = -v^4 \end{aligned}$$

$$\begin{aligned} 8. & b^2 \cdot \frac{b^2}{b} \cdot (-8) \\ & = -8b^3 \end{aligned}$$

$$\begin{aligned} 4. & -\frac{20x^7}{-x^2 \cdot 4x \cdot 5x^2} \\ & = x^2 \end{aligned}$$

$$\begin{aligned} 9. & -\frac{2z^4}{-z^2} \cdot 8z^2 \cdot z \\ & = 16z^5 \end{aligned}$$

$$\begin{aligned} 5. & -\frac{2y^5}{y^2 \cdot y} \cdot (-8y^2) \\ & = 16y^4 \end{aligned}$$

$$\begin{aligned} 10. & -1 \cdot c \cdot 5 \cdot 3 \\ & = -15c \end{aligned}$$