

## Simplifying Expressions (A)

Simplify each expression.

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

6.  $8 \cdot \left(-\frac{48x}{-8x}\right) \cdot (-b^2) \cdot (-b)$

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

7.  $-b \cdot 10b^2 \cdot \left(-\frac{12by^2}{3b}\right) \cdot 7b^2$

3.  $-9 \cdot \frac{40v^2}{8 \cdot 5v^2} \cdot v$

8.  $-av \cdot 9 \cdot v \cdot 5 \cdot a^2$

4.  $4c^2 \cdot (-b) \cdot \left(-\frac{2b^2c^2}{b \cdot (-2bc)}\right)$

9.  $a \cdot (-av) \cdot 7a^2 \cdot (-7av) \cdot (-a^2)$

5.  $-\frac{10y}{2 \cdot (-5y)} \cdot x^2 \cdot xy$

10.  $10 \cdot y \cdot (-8x) \cdot \frac{9x}{9}$

## Simplifying Expressions (A) Answers

Simplify each expression.

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

$$\begin{aligned} 6. 8 \cdot \left( -\frac{48x}{-8x} \right) \cdot (-b^2) \cdot (-b) \\ = 48b^3 \end{aligned}$$

$$\begin{aligned} 2. -7 \cdot (-v^2) \cdot 4 \cdot (-1) \cdot (-av) \\ = 28av^3 \end{aligned}$$

$$\begin{aligned} 7. -b \cdot 10b^2 \cdot \left( -\frac{12by^2}{3b} \right) \cdot 7b^2 \\ = 280b^5y^2 \end{aligned}$$

$$\begin{aligned} 3. -9 \cdot \frac{40v^2}{8 \cdot 5v^2} \cdot v \\ = -9v \end{aligned}$$

$$\begin{aligned} 8. -av \cdot 9 \cdot v \cdot 5 \cdot a^2 \\ = -45a^3v^2 \end{aligned}$$

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

$$\begin{aligned} 9. a \cdot (-av) \cdot 7a^2 \cdot (-7av) \cdot (-a^2) \\ = -49a^7v^2 \end{aligned}$$

$$\begin{aligned} 5. -\frac{10y}{2 \cdot (-5y)} \cdot x^2 \cdot xy \\ = x^3y \end{aligned}$$

$$\begin{aligned} 10. 10 \cdot y \cdot (-8x) \cdot \frac{9x}{9} \\ = -80x^2y \end{aligned}$$

## Simplifying Expressions (B)

Simplify each expression.

1.  $9 \cdot v^2 \cdot 5c \cdot \left( -\frac{4cv^2}{-cv} \right)$

6.  $-\frac{8x^2}{8x^2} \cdot c^2 \cdot c \cdot 5c$

2.  $z \cdot (-6) \cdot \left( -\frac{12az}{-2} \right) \cdot 3$

7.  $\frac{24y^3}{8 \cdot (-3y^2)} \cdot (-y) \cdot 7$

3.  $10z^2 \cdot 8x \cdot z^2 \cdot x^2 \cdot (-3z)$

8.  $9a^2 \cdot \frac{56a^2c^3}{-c^2 \cdot (-8ac)} \cdot a$

4.  $-x^2 \cdot x^2 \cdot (-9x^2) \cdot bx \cdot 9b^2$

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

5.  $-\frac{10c^2}{-c^2} \cdot 8c \cdot (-1) \cdot v^2$

10.  $a \cdot \left( -\frac{54a^5v^2}{9av \cdot (-3a) \cdot a^2} \right)$

## Simplifying Expressions (B) Answers

Simplify each expression.

$$\begin{aligned} 1. & 9 \cdot v^2 \cdot 5c \cdot \left( -\frac{4cv^2}{-cv} \right) \\ & = 180cv^3 \end{aligned}$$

$$\begin{aligned} 6. & -\frac{8x^2}{8x^2} \cdot c^2 \cdot c \cdot 5c \\ & = -5c^4 \end{aligned}$$

$$\begin{aligned} 2. & z \cdot (-6) \cdot \left( -\frac{12az}{-2} \right) \cdot 3 \\ & = -108az^2 \end{aligned}$$

$$\begin{aligned} 7. & \frac{24y^3}{8 \cdot (-3y^2)} \cdot (-y) \cdot 7 \\ & = 7y^2 \end{aligned}$$

$$\begin{aligned} 3. & 10z^2 \cdot 8x \cdot z^2 \cdot x^2 \cdot (-3z) \\ & = -240x^3z^5 \end{aligned}$$

$$\begin{aligned} 8. & 9a^2 \cdot \frac{56a^2c^3}{-c^2 \cdot (-8ac)} \cdot a \\ & = 63a^4 \end{aligned}$$

$$\begin{aligned} 4. & -x^2 \cdot x^2 \cdot (-9x^2) \cdot bx \cdot 9b^2 \\ & = 81b^3x^7 \end{aligned}$$

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

$$\begin{aligned} 5. & -\frac{10c^2}{-c^2} \cdot 8c \cdot (-1) \cdot v^2 \\ & = -80cv^2 \end{aligned}$$

$$\begin{aligned} 10. & a \cdot \left( -\frac{54a^5v^2}{9av \cdot (-3a) \cdot a^2} \right) \\ & = 2a^2v \end{aligned}$$

## Simplifying Expressions (C)

Simplify each expression.

$$1. -\frac{5z^2}{5z^2} \cdot z^2 \cdot (-z) \cdot 7z$$

$$6. -\frac{3by^2}{-1 \cdot (-b) \cdot (-y) \cdot (-3)}$$

$$2. 4 \cdot 2 \cdot \frac{2v^3z}{2vz} \cdot z$$

$$7. \frac{72ay^4}{9y \cdot 8ay} \cdot (-1) \cdot y$$

$$3. -\frac{3200b^5c}{-10b^2 \cdot (-4b^2) \cdot 10 \cdot 8b}$$

$$8. 3 \cdot \left(-\frac{2}{2}\right) \cdot 9v \cdot 5v^2$$

$$4. -5 \cdot 9v \cdot v^2 \cdot (-v^2) \cdot cv$$

$$9. -u^2 \cdot 2 \cdot (-u) \cdot (-u) \cdot cu$$

$$5. uy \cdot 8 \cdot 7uy \cdot (-10u) \cdot y$$

$$10. ac \cdot (-1) \cdot 10c \cdot (-ac) \cdot (-a^2)$$

## Simplifying Expressions (C) Answers

Simplify each expression.

$$\begin{aligned} 1. & -\frac{5z^2}{5z^2} \cdot z^2 \cdot (-z) \cdot 7z \\ & = 7z^4 \end{aligned}$$

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

$$\begin{aligned} 2. & 4 \cdot 2 \cdot \frac{2v^3z}{2vz} \cdot z \\ & = 8v^2z \end{aligned}$$

$$\begin{aligned} 7. & \frac{72ay^4}{9y \cdot 8ay} \cdot (-1) \cdot y \\ & = -y^3 \end{aligned}$$

$$\begin{aligned} 3. & -\frac{3200b^5c}{-10b^2 \cdot (-4b^2) \cdot 10 \cdot 8b} \\ & = -c \end{aligned}$$

$$\begin{aligned} 8. & 3 \cdot \left(-\frac{2}{2}\right) \cdot 9v \cdot 5v^2 \\ & = -135v^3 \end{aligned}$$

$$\begin{aligned} 4. & -5 \cdot 9v \cdot v^2 \cdot (-v^2) \cdot cv \\ & = 45cv^6 \end{aligned}$$

$$\begin{aligned} 9. & -u^2 \cdot 2 \cdot (-u) \cdot (-u) \cdot cu \\ & = -2cu^5 \end{aligned}$$

$$\begin{aligned} 5. & uy \cdot 8 \cdot 7uy \cdot (-10u) \cdot y \\ & = -560u^3y^3 \end{aligned}$$

$$\begin{aligned} 10. & ac \cdot (-1) \cdot 10c \cdot (-ac) \cdot (-a^2) \\ & = -10a^4c^3 \end{aligned}$$

## Simplifying Expressions (D)

Simplify each expression.

1.  $9 \cdot (-1) \cdot cy \cdot (-c) \cdot 2c^2$

6.  $-y \cdot 4y \cdot 10y \cdot y \cdot y$

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

7.  $-2c^2 \cdot (-u) \cdot c \cdot \left(-\frac{8u^3}{-8u}\right)$

3.  $\frac{4a^4v^3}{a^2 \cdot 4v \cdot a \cdot av}$

8.  $b \cdot \frac{6bc}{bc \cdot (-6)} \cdot c$

4.  $-\frac{243uv}{-9v \cdot (-3)} \cdot uv \cdot 4u$

9.  $-\frac{18a^3c^4}{-2ac \cdot a^2 \cdot 3c} \cdot c^2$

5.  $6 \cdot (-6z^2) \cdot 7z^2 \cdot 8z \cdot 8z^2$

10.  $-x \cdot (-1) \cdot (-5v) \cdot (-x^2) \cdot v^2$

## Simplifying Expressions (D) Answers

Simplify each expression.

$$1. 9 \cdot (-1) \cdot cy \cdot (-c) \cdot 2c^2 \\ = 18c^4y$$

$$6. -y \cdot 4y \cdot 10y \cdot y \cdot y \\ = -40y^5$$

$$2. -4a^2 \cdot 7 \cdot (-1) \cdot (-1) \cdot (-3) \\ = 84a^2$$

$$7. -2c^2 \cdot (-u) \cdot c \cdot \left(-\frac{8u^3}{-8u}\right) \\ = 2c^3u^3$$

$$3. \frac{4a^4v^3}{\underline{a^2} \cdot 4v \cdot a \cdot av} \\ = v$$

$$8. b \cdot \frac{6bc}{bc \cdot (-6)} \cdot c \\ = -bc$$

$$4. -\frac{243uv}{-9v \cdot (-3)} \cdot uv \cdot 4u \\ = -36u^3v$$

$$9. -\frac{18a^3c^4}{-2ac \cdot a^2 \cdot 3c} \cdot c^2 \\ = 3c^4$$

$$5. 6 \cdot (-6z^2) \cdot 7z^2 \cdot 8z \cdot 8z^2 \\ = -16128z^7$$

$$10. -x \cdot (-1) \cdot (-5v) \cdot (-x^2) \cdot v^2 \\ = 5v^3x^3$$

## Simplifying Expressions (E)

Simplify each expression.

1.  $8vy \cdot \frac{24v^2y}{6v \cdot 4} \cdot (-v^2)$

6.  $b^2 \cdot bx \cdot \left(-\frac{b^2}{-1}\right) \cdot (-5)$

2.  $\frac{1728c^5y^3}{6c^2 \cdot 8cy \cdot (-c) \cdot 9y}$

7.  $10 \cdot \left(-\frac{3c^3z}{3c^2 \cdot (-z)}\right) \cdot 8cz$

3.  $u \cdot (-c) \cdot (-u) \cdot c \cdot (-10)$

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

4.  $10a^2 \cdot (-5) \cdot (-1) \cdot 5z \cdot a^2$

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

5.  $-1 \cdot (-1) \cdot (-4) \cdot (-6y) \cdot (-y)$

10.  $ux \cdot (-x) \cdot u \cdot \frac{5x^3}{x}$

## Simplifying Expressions (E) Answers

Simplify each expression.

$$\begin{aligned} 1. & 8vy \cdot \frac{24v^2y}{6v \cdot 4} \cdot (-v^2) \\ & = -8v^4y^2 \end{aligned}$$

$$\begin{aligned} 6. & b^2 \cdot bx \cdot \left(-\frac{b^2}{-1}\right) \cdot (-5) \\ & = -5b^5x \end{aligned}$$

$$\begin{aligned} 2. & \frac{1728c^5y^3}{6c^2 \cdot 8cy \cdot (-c) \cdot 9y} \\ & = -4cy \end{aligned}$$

$$\begin{aligned} 7. & 10 \cdot \left(-\frac{3c^3z}{3c^2 \cdot (-z)}\right) \cdot 8cz \\ & = 80c^2z \end{aligned}$$

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

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

$$\begin{aligned} 4. & 10a^2 \cdot (-5) \cdot (-1) \cdot 5z \cdot a^2 \\ & = 250a^4z \end{aligned}$$

$$\begin{aligned} 9. & 2 \cdot (-4y^2) \cdot \frac{9y}{-1 \cdot y} \\ & = 72y^2 \end{aligned}$$

$$\begin{aligned} 5. & -1 \cdot (-1) \cdot (-4) \cdot (-6y) \cdot (-y) \\ & = -24y^2 \end{aligned}$$

$$\begin{aligned} 10. & ux \cdot (-x) \cdot u \cdot \frac{5x^3}{x} \\ & = -5u^2x^4 \end{aligned}$$

## Simplifying Expressions (F)

Simplify each expression.

1.  $b^2 \cdot \left( -\frac{30b^2x^2}{-1 \cdot 10b \cdot 3x^2} \right)$

6.  $\frac{x}{-1} \cdot u^2 \cdot 8 \cdot 10$

2.  $2b \cdot b^2 \cdot bc \cdot \frac{2b^2}{b}$

7.  $-\frac{5x^2}{-x^2} \cdot x \cdot (-x) \cdot (-1)$

3.  $-1 \cdot (-5a^2) \cdot \left( -\frac{b}{b} \right) \cdot ab$

8.  $4 \cdot (-2) \cdot 2v^2 \cdot v^2 \cdot c^2$

4.  $\frac{4v^2y}{vy} \cdot (-y) \cdot (-6v) \cdot vy$

9.  $-\frac{392a^4x^4}{7a \cdot (-4ax) \cdot 7ax \cdot 2x}$

5.  $z \cdot (-6c^2) \cdot \frac{2c}{2} \cdot (-8z)$

10.  $-10bu \cdot (-u) \cdot bu \cdot \frac{2u^2}{2}$

## Simplifying Expressions (F) Answers

Simplify each expression.

$$1. b^2 \cdot \left( -\frac{30b^2x^2}{-1 \cdot 10b \cdot 3x^2} \right) \\ = b^3$$

$$6. \frac{x}{-1} \cdot u^2 \cdot 8 \cdot 10 \\ = -80u^2x$$

$$2. 2b \cdot b^2 \cdot bc \cdot \frac{2b^2}{b} \\ = 4b^5c$$

$$7. -\frac{5x^2}{-x^2} \cdot x \cdot (-x) \cdot (-1) \\ = 5x^2$$

$$3. -1 \cdot (-5a^2) \cdot \left( -\frac{b}{b} \right) \cdot ab \\ = -5a^3b$$

$$8. 4 \cdot (-2) \cdot 2v^2 \cdot v^2 \cdot c^2 \\ = -16c^2v^4$$

$$4. \frac{4v^2y}{vy} \cdot (-y) \cdot (-6v) \cdot vy \\ = 24v^3y^2$$

$$9. -\frac{392a^4x^4}{7a \cdot (-4ax) \cdot 7ax \cdot 2x} \\ = ax$$

$$5. z \cdot (-6c^2) \cdot \frac{2c}{2} \cdot (-8z) \\ = 48c^3z^2$$

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

## Simplifying Expressions (G)

Simplify each expression.

$$1. -v \cdot \left( -\frac{18u^2v^2}{-3v^2 \cdot (-6)} \right) \cdot (-v)$$

$$6. 7xy \cdot 4x^2 \cdot 8xy \cdot (-10) \cdot 10y^2$$

$$2. -7y^2 \cdot \left( -\frac{28y^6}{-y \cdot 7y^2 \cdot y^2} \right)$$

$$7. -1 \cdot c^2 \cdot \frac{4c^3}{4c^2} \cdot c$$

$$3. xz \cdot \left( -\frac{9x^2z}{z \cdot (-9x^2)} \right) \cdot 7z^2$$

$$8. cv \cdot (-4v^2) \cdot c \cdot 4c \cdot 10v$$

$$4. 7a \cdot \frac{81a^5}{-9a \cdot 9a \cdot a}$$

$$9. -5bv \cdot \frac{v}{v} \cdot (-v^2) \cdot 3v$$

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

$$10. 6a^2 \cdot \left( -\frac{18a^2c^2}{6a^2 \cdot 3c^2 \cdot (-1)} \right)$$

## Simplifying Expressions (G) Answers

Simplify each expression.

$$\begin{aligned} 1. & -v \cdot \left( -\frac{18u^2v^2}{-3v^2 \cdot (-6)} \right) \cdot (-v) \\ & = -u^2v^2 \end{aligned}$$

$$\begin{aligned} 6. & 7xy \cdot 4x^2 \cdot 8xy \cdot (-10) \cdot 10y^2 \\ & = -22400x^4y^4 \end{aligned}$$

$$\begin{aligned} 2. & -7y^2 \cdot \left( -\frac{28y^6}{-y \cdot 7y^2 \cdot y^2} \right) \\ & = -28y^3 \end{aligned}$$

$$\begin{aligned} 7. & -1 \cdot c^2 \cdot \frac{4c^3}{4c^2} \cdot c \\ & = -c^4 \end{aligned}$$

$$\begin{aligned} 3. & xz \cdot \left( -\frac{9x^2z}{z \cdot (-9x^2)} \right) \cdot 7z^2 \\ & = 7xz^3 \end{aligned}$$

$$\begin{aligned} 8. & cv \cdot (-4v^2) \cdot c \cdot 4c \cdot 10v \\ & = -160c^3v^4 \end{aligned}$$

$$\begin{aligned} 4. & 7a \cdot \frac{81a^5}{-9a \cdot 9a \cdot a} \\ & = -7a^3 \end{aligned}$$

$$\begin{aligned} 9. & -5bv \cdot \frac{v}{v} \cdot (-v^2) \cdot 3v \\ & = 15bv^4 \end{aligned}$$

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

$$\begin{aligned} 10. & 6a^2 \cdot \left( -\frac{18a^2c^2}{6a^2 \cdot 3c^2 \cdot (-1)} \right) \\ & = 6a^2 \end{aligned}$$

## Simplifying Expressions (H)

Simplify each expression.

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

$$6. 8cz \cdot (-1) \cdot 10 \cdot 7c^2 \cdot (-6)$$

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

$$7. \frac{uz}{-1} \cdot u \cdot (-2) \cdot (-1)$$

$$3. -b^2 \cdot 9bc \cdot 8 \cdot (-10b^2) \cdot b$$

$$8. \frac{24c^3}{6c^2} \cdot 5c^2 \cdot 6ac \cdot 4$$

$$4. -8u^2 \cdot cu \cdot c \cdot 7c \cdot c$$

$$9. 9c \cdot 5 \cdot \frac{30c^2v^2}{6v \cdot (-5cv)}$$

$$5. -y \cdot (-6b^2) \cdot \left(-\frac{27y^2}{3y^2}\right) \cdot 9by$$

$$10. -y^2 \cdot (-y^2) \cdot 7xy \cdot y \cdot (-x^2)$$

## Simplifying Expressions (H) Answers

Simplify each expression.

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

$$\begin{aligned} 6. & 8cz \cdot (-1) \cdot 10 \cdot 7c^2 \cdot (-6) \\ & = 3360c^3z \end{aligned}$$

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

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

$$\begin{aligned} 3. & -b^2 \cdot 9bc \cdot 8 \cdot (-10b^2) \cdot b \\ & = 720b^6c \end{aligned}$$

$$\begin{aligned} 8. & \frac{24c^3}{6c^2} \cdot 5c^2 \cdot 6ac \cdot 4 \\ & = 480ac^4 \end{aligned}$$

$$\begin{aligned} 4. & -8u^2 \cdot cu \cdot c \cdot 7c \cdot c \\ & = -56c^4u^3 \end{aligned}$$

$$\begin{aligned} 9. & 9c \cdot 5 \cdot \frac{30c^2v^2}{6v \cdot (-5cv)} \\ & = -45c^2 \end{aligned}$$

$$\begin{aligned} 5. & -y \cdot (-6b^2) \cdot \left(-\frac{27y^2}{3y^2}\right) \cdot 9by \\ & = -486b^3y^2 \end{aligned}$$

$$\begin{aligned} 10. & -y^2 \cdot (-y^2) \cdot 7xy \cdot y \cdot (-x^2) \\ & = -7x^3y^6 \end{aligned}$$

## Simplifying Expressions (I)

Simplify each expression.

1.  $3ay \cdot a^2 \cdot 6y \cdot 3y^2 \cdot (-5y)$

6.  $b^2 \cdot (-7bu) \cdot b \cdot bu \cdot b^2$

2.  $-\frac{162a^2y^6}{y^2 \cdot (-3ay) \cdot a \cdot 6y^2}$

7.  $-3c^2 \cdot 4 \cdot 9c \cdot 9bc \cdot b^2$

3.  $-7a \cdot (-6a) \cdot (-5) \cdot 9az \cdot (-2az)$

8.  $-10u \cdot \frac{48au^3}{8u^2 \cdot 2au \cdot 3}$

4.  $5a \cdot a \cdot 10 \cdot \left(-\frac{7au}{7u}\right)$

9.  $-a \cdot \frac{196z^4}{4z^2 \cdot 7z} \cdot a^2$

5.  $-\frac{6a^2y^2}{-ay \cdot 6ay} \cdot a \cdot (-10ay)$

10.  $x \cdot \frac{40z^2}{4z} \cdot 8x \cdot z$

## Simplifying Expressions (I) Answers

Simplify each expression.

$$\begin{aligned} 1. & 3ay \cdot a^2 \cdot 6y \cdot 3y^2 \cdot (-5y) \\ &= -270a^3y^5 \end{aligned}$$

$$\begin{aligned} 6. & b^2 \cdot (-7bu) \cdot b \cdot bu \cdot b^2 \\ &= -7b^7u^2 \end{aligned}$$

$$\begin{aligned} 2. & -\frac{162a^2y^6}{y^2 \cdot (-3ay) \cdot a \cdot 6y^2} \\ &= 9y \end{aligned}$$

$$\begin{aligned} 7. & -3c^2 \cdot 4 \cdot 9c \cdot 9bc \cdot b^2 \\ &= -972b^3c^4 \end{aligned}$$

$$\begin{aligned} 3. & -7a \cdot (-6a) \cdot (-5) \cdot 9az \cdot (-2az) \\ &= 3780a^4z^2 \end{aligned}$$

$$\begin{aligned} 8. & -10u \cdot \frac{48au^3}{8u^2 \cdot 2au \cdot 3} \\ &= -10u \end{aligned}$$

$$\begin{aligned} 4. & 5a \cdot a \cdot 10 \cdot \left(-\frac{7au}{7u}\right) \\ &= -50a^3 \end{aligned}$$

$$\begin{aligned} 9. & -a \cdot \frac{196z^4}{4z^2 \cdot 7z} \cdot a^2 \\ &= -7a^3z \end{aligned}$$

$$\begin{aligned} 5. & -\frac{6a^2y^2}{-ay \cdot 6ay} \cdot a \cdot (-10ay) \\ &= -10a^2y \end{aligned}$$

$$\begin{aligned} 10. & x \cdot \frac{40z^2}{4z} \cdot 8x \cdot z \\ &= 80x^2z^2 \end{aligned}$$

## Simplifying Expressions (J)

Simplify each expression.

$$1. 10u \cdot 9a \cdot \frac{8a}{-1} \cdot 5u$$

$$6. z^2 \cdot z^2 \cdot \frac{7z}{-z} \cdot 7z^2$$

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

$$7. -2c \cdot (-c) \cdot 3cx \cdot cx \cdot 3c$$

$$3. 6x \cdot xy \cdot \frac{2}{-1} \cdot 2y$$

$$8. -\frac{b^2z^3}{-b \cdot z^2} \cdot 10b^2 \cdot bz$$

$$4. \frac{144x^4}{2x^2 \cdot (-9) \cdot 8} \cdot 2bx$$

$$9. y^2 \cdot \frac{5c^4}{-5c^2 \cdot (-c)} \cdot 2c$$

$$5. -\frac{5c^5u}{-5u \cdot (-c) \cdot (-c^2)} \cdot 10c^2$$

$$10. \frac{8cu}{cu} \cdot 2u \cdot (-1) \cdot 6$$

## Simplifying Expressions (J) Answers

Simplify each expression.

$$\begin{aligned} 1. 10u \cdot 9a \cdot \frac{8a}{-1} \cdot 5u \\ = -3600a^2u^2 \end{aligned}$$

$$\begin{aligned} 6. z^2 \cdot z^2 \cdot \frac{7z}{-z} \cdot 7z^2 \\ = -49z^6 \end{aligned}$$

$$\begin{aligned} 2. 2y^2 \cdot y \cdot 7y^2 \cdot \left(-\frac{y^2}{-y^2}\right) \\ = 14y^5 \end{aligned}$$

$$\begin{aligned} 7. -2c \cdot (-c) \cdot 3cx \cdot cx \cdot 3c \\ = 18c^5x^2 \end{aligned}$$

$$\begin{aligned} 3. 6x \cdot xy \cdot \frac{2}{-1} \cdot 2y \\ = -24x^2y^2 \end{aligned}$$

$$\begin{aligned} 8. -\frac{b^2z^3}{-b \cdot z^2} \cdot 10b^2 \cdot bz \\ = 10b^4z^2 \end{aligned}$$

$$\begin{aligned} 4. \frac{144x^4}{2x^2 \cdot (-9) \cdot 8} \cdot 2bx \\ = -2bx^3 \end{aligned}$$

$$\begin{aligned} 9. y^2 \cdot \frac{5c^4}{-5c^2 \cdot (-c)} \cdot 2c \\ = 2c^2y^2 \end{aligned}$$

$$\begin{aligned} 5. -\frac{5c^5u}{-5u \cdot (-c) \cdot (-c^2)} \cdot 10c^2 \\ = 10c^4 \end{aligned}$$

$$\begin{aligned} 10. \frac{8cu}{cu} \cdot 2u \cdot (-1) \cdot 6 \\ = -96u \end{aligned}$$