

## Simplifying Expressions (A)

Simplify each expression.

1.  $\frac{5c^2v^2}{cv} - \frac{3c^3v}{c^2}$

6.  $-7v + 9u \cdot uv \cdot 5v$

2.  $-xy \cdot \frac{x^3y}{x^2} + 10$

7.  $-y - \frac{a^3y}{-ay} + 4y$

3.  $-v^2 + v^2 - a - 1$

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

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

9.  $a^2 - 10 - 10z + 1$

5.  $-1 \cdot (-1) \cdot 3z \cdot 8$

10.  $-z^2 \cdot 5 \cdot \frac{6z}{6z}$

## Simplifying Expressions (A) Answers

Simplify each expression.

$$\begin{aligned} 1. \quad & \frac{5c^2v^2}{cv} - \frac{3c^3v}{c^2} \\ & = 2cv \end{aligned}$$

$$\begin{aligned} 6. \quad & -7v + 9u \cdot uv \cdot 5v \\ & = 45u^2v^2 - 7v \end{aligned}$$

$$\begin{aligned} 2. \quad & -xy \cdot \frac{x^3y}{x^2} + 10 \\ & = -x^2y^2 + 10 \end{aligned}$$

$$\begin{aligned} 7. \quad & -y - \frac{a^3y}{-ay} + 4y \\ & = a^2 + 3y \end{aligned}$$

$$\begin{aligned} 3. \quad & -v^2 + v^2 - a - 1 \\ & = -a - 1 \end{aligned}$$

$$\begin{aligned} 8. \quad & -\frac{10a^2v^2}{-10v \cdot (-v)} \cdot 10v \\ & = -10a^2v \end{aligned}$$

$$\begin{aligned} 4. \quad & v^2 \cdot (-v^2) + 5v + 2 \\ & = -v^4 + 5v + 2 \end{aligned}$$

$$\begin{aligned} 9. \quad & a^2 - 10 - 10z + 1 \\ & = a^2 - 10z - 9 \end{aligned}$$

$$\begin{aligned} 5. \quad & -1 \cdot (-1) \cdot 3z \cdot 8 \\ & = 24z \end{aligned}$$

$$\begin{aligned} 10. \quad & -z^2 \cdot 5 \cdot \frac{6z}{6z} \\ & = -5z^2 \end{aligned}$$

## Simplifying Expressions (B)

Simplify each expression.

1.  $-a + a + a^2 + a^2$

6.  $2 - \frac{y^3}{y^2} + y^2$

2.  $1 + 5b + by - 1$

7.  $-\frac{by^3}{by} + 5 - 4b$

3.  $-u + ux - \frac{7u^2}{7u^2}$

8.  $6uv + u^2 - 1 - uv$

4.  $6 + uv \cdot 6uv \cdot (-6)$

9.  $-1 + 7bv + 7 + 6$

5.  $v \cdot 8v + 8c \cdot cv$

10.  $9x \cdot 2 + \frac{40}{5}$

## Simplifying Expressions (B) Answers

Simplify each expression.

$$1. -a + a + a^2 + a^2 \\ = 2a^2$$

$$6. 2 - \frac{y^3}{y^2} + y^2 \\ = y^2 - y + 2$$

$$2. 1 + 5b + by - 1 \\ = by + 5b$$

$$7. -\frac{by^3}{by} + 5 - 4b \\ = -y^2 - 4b + 5$$

$$3. -u + ux - \frac{7u^2}{7u^2} \\ = ux - u - 1$$

$$8. 6uv + u^2 - 1 - uv \\ = 5uv + u^2 - 1$$

$$4. 6 + uv \cdot 6uv \cdot (-6) \\ = -36u^2v^2 + 6$$

$$9. -1 + 7bv + 7 + 6 \\ = 7bv + 12$$

$$5. v \cdot 8v + 8c \cdot cv \\ = 8c^2v + 8v^2$$

$$10. 9x \cdot 2 + \frac{40}{5} \\ = 18x + 8$$

## Simplifying Expressions (C)

Simplify each expression.

1.  $\frac{36v^2}{9} \cdot (-v^2) \cdot 9$

6.  $-y + 10y^2 + y + vy$

2.  $a - \frac{50a}{-5a \cdot 10}$

7.  $uv + 6v + \frac{u^2v}{uv}$

3.  $-1 + 2v^2 + \frac{c^2v}{-c^2}$

8.  $-4 \cdot 9xy + y - 1$

4.  $-8c + 5 + 1 - 6cy$

9.  $-1 + 2z + 3 + z^2$

5.  $-y^2 \cdot 7y^2 \cdot 7 \cdot 2$

10.  $-a + 1 - 1 + a^2$

## Simplifying Expressions (C) Answers

Simplify each expression.

$$\begin{aligned} 1. \quad & \frac{36v^2}{9} \cdot (-v^2) \cdot 9 \\ & = -36v^4 \end{aligned}$$

$$\begin{aligned} 6. \quad & -y + 10y^2 + y + vy \\ & = 10y^2 + vy \end{aligned}$$

$$\begin{aligned} 2. \quad & a - \frac{50a}{-5a \cdot 10} \\ & = a + 1 \end{aligned}$$

$$\begin{aligned} 7. \quad & uv + 6v + \frac{u^2v}{uv} \\ & = uv + 6v + u \end{aligned}$$

$$\begin{aligned} 3. \quad & -1 + 2v^2 + \frac{c^2v}{-c^2} \\ & = 2v^2 - v - 1 \end{aligned}$$

$$\begin{aligned} 8. \quad & -4 \cdot 9xy + y - 1 \\ & = -36xy + y - 1 \end{aligned}$$

$$\begin{aligned} 4. \quad & -8c + 5 + 1 - 6cy \\ & = -6cy - 8c + 6 \end{aligned}$$

$$\begin{aligned} 9. \quad & -1 + 2z + 3 + z^2 \\ & = z^2 + 2z + 2 \end{aligned}$$

$$\begin{aligned} 5. \quad & -y^2 \cdot 7y^2 \cdot 7 \cdot 2 \\ & = -98y^4 \end{aligned}$$

$$\begin{aligned} 10. \quad & -a + 1 - 1 + a^2 \\ & = a^2 - a \end{aligned}$$

## Simplifying Expressions (D)

Simplify each expression.

1.  $7y \cdot \frac{24a^4y}{8ay \cdot 3a}$

6.  $cy + \frac{40c^2}{10} + y^2$

2.  $-3vx - x + vx + 1$

7.  $\frac{y^4}{y^2} + 6y - 7$

3.  $7c \cdot 9c^2 + 2c^2 + 6c^2$

8.  $x^2 + \frac{10b^2x^2}{10b^2} - 10b$

4.  $4z \cdot \frac{9yz^4}{3z \cdot 3z^2}$

9.  $u \cdot \frac{48u^3z}{8uz \cdot 6u}$

5.  $8b^2 + b + \frac{36b^2z}{6bz}$

10.  $-7y^2 \cdot \left(-\frac{20c^2y}{10y}\right) \cdot (-10)$

## Simplifying Expressions (D) Answers

Simplify each expression.

$$\begin{aligned} 1. \quad & 7y \cdot \frac{24a^4y}{8ay \cdot 3a} \\ & = 7a^2y \end{aligned}$$

$$\begin{aligned} 6. \quad & cy + \frac{40c^2}{10} + y^2 \\ & = cy + 4c^2 + y^2 \end{aligned}$$

$$\begin{aligned} 2. \quad & -3vx - x + vx + 1 \\ & = -2vx - x + 1 \end{aligned}$$

$$\begin{aligned} 7. \quad & \frac{y^4}{y^2} + 6y - 7 \\ & = y^2 + 6y - 7 \end{aligned}$$

$$\begin{aligned} 3. \quad & 7c \cdot 9c^2 + 2c^2 + 6c^2 \\ & = 63c^3 + 8c^2 \end{aligned}$$

$$\begin{aligned} 8. \quad & x^2 + \frac{10b^2x^2}{10b^2} - 10b \\ & = 2x^2 - 10b \end{aligned}$$

$$\begin{aligned} 4. \quad & 4z \cdot \frac{9yz^4}{3z \cdot 3z^2} \\ & = 4yz^2 \end{aligned}$$

$$\begin{aligned} 9. \quad & u \cdot \frac{48u^3z}{8uz \cdot 6u} \\ & = u^2 \end{aligned}$$

$$\begin{aligned} 5. \quad & 8b^2 + b + \frac{36b^2z}{6bz} \\ & = 8b^2 + 7b \end{aligned}$$

$$\begin{aligned} 10. \quad & -7y^2 \cdot \left( -\frac{20c^2y}{10y} \right) \cdot (-10) \\ & = -140c^2y^2 \end{aligned}$$



## Simplifying Expressions (E)

Simplify each expression.

1.  $-6b + \frac{bz^2}{z^2} + bz$

6.  $-10ac \cdot \left( -\frac{3ac}{-ac \cdot 3} \right)$

2.  $1 + 6x^2 + 4x + 1$

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

3.  $10y + 1 - 2x + 1$

8.  $\frac{8az}{-2z} \cdot (-1) \cdot a$

4.  $by + 1 - 2 + 1$

9.  $-uz \cdot (-10uz) \cdot (-z) \cdot 7$

5.  $\frac{6z^4}{6z^2} - \frac{z^3}{-z}$

10.  $u - u + 10u^2 - 9$

## Simplifying Expressions (E) Answers

Simplify each expression.

$$\begin{aligned} 1. \quad & -6b + \frac{bz^2}{z^2} + bz \\ & = bz - 5b \end{aligned}$$

$$\begin{aligned} 6. \quad & -10ac \cdot \left( -\frac{3ac}{-ac \cdot 3} \right) \\ & = -10ac \end{aligned}$$

$$\begin{aligned} 2. \quad & 1 + 6x^2 + 4x + 1 \\ & = 6x^2 + 4x + 2 \end{aligned}$$

$$\begin{aligned} 7. \quad & b \cdot 8b \cdot (-a^2) \cdot (-9a^2) \\ & = 72a^4b^2 \end{aligned}$$

$$\begin{aligned} 3. \quad & 10y + 1 - 2x + 1 \\ & = 10y - 2x + 2 \end{aligned}$$

$$\begin{aligned} 8. \quad & \frac{8az}{-2z} \cdot (-1) \cdot a \\ & = 4a^2 \end{aligned}$$

$$\begin{aligned} 4. \quad & by + 1 - 2 + 1 \\ & = by \end{aligned}$$

$$\begin{aligned} 9. \quad & -uz \cdot (-10uz) \cdot (-z) \cdot 7 \\ & = -70u^2z^3 \end{aligned}$$

$$\begin{aligned} 5. \quad & \frac{6z^4}{6z^2} - \frac{z^3}{-z} \\ & = 2z^2 \end{aligned}$$

$$\begin{aligned} 10. \quad & u - u + 10u^2 - 9 \\ & = 10u^2 - 9 \end{aligned}$$

## Simplifying Expressions (F)

Simplify each expression.

1.  $-7cu + c - \frac{c}{-c}$

6.  $-10x^2 \cdot (-3x^2) \cdot 6x^2 \cdot (-3x)$

2.  $-4y + 1 + y + 9y$

7.  $1 - \frac{8u}{-1} + u^2$

3.  $-b^2 - 1 + b - b$

8.  $4 + 9u - 1 - uy$

4.  $\frac{4a}{4} + 1 + 1$

9.  $z + 10a \cdot \left( -\frac{6az}{-z} \right)$

5.  $\frac{9c^2v}{cv} + 1 + 4c$

10.  $-b + 3b + 6y - 1$

## Simplifying Expressions (F) Answers

Simplify each expression.

$$\begin{aligned} 1. \quad & -7cu + c - \frac{c}{-c} \\ & = -7cu + c + 1 \end{aligned}$$

$$\begin{aligned} 6. \quad & -10x^2 \cdot (-3x^2) \cdot 6x^2 \cdot (-3x) \\ & = -540x^7 \end{aligned}$$

$$\begin{aligned} 2. \quad & -4y + 1 + y + 9y \\ & = 6y + 1 \end{aligned}$$

$$\begin{aligned} 7. \quad & 1 - \frac{8u}{-1} + u^2 \\ & = u^2 + 8u + 1 \end{aligned}$$

$$\begin{aligned} 3. \quad & -b^2 - 1 + b - b \\ & = -b^2 - 1 \end{aligned}$$

$$\begin{aligned} 8. \quad & 4 + 9u - 1 - uy \\ & = -uy + 9u + 3 \end{aligned}$$

$$\begin{aligned} 4. \quad & \frac{4a}{4} + 1 + 1 \\ & = a + 2 \end{aligned}$$

$$\begin{aligned} 9. \quad & z + 10a \cdot \left( -\frac{6az}{-z} \right) \\ & = 60a^2 + z \end{aligned}$$

$$\begin{aligned} 5. \quad & \frac{9c^2v}{cv} + 1 + 4c \\ & = 13c + 1 \end{aligned}$$

$$\begin{aligned} 10. \quad & -b + 3b + 6y - 1 \\ & = 2b + 6y - 1 \end{aligned}$$

## Simplifying Expressions (G)

Simplify each expression.

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

6.  $-7ux + \frac{4ux^2}{2x} + 10ux$

2.  $y^2 \cdot \left( -\frac{32uy^2}{-8y \cdot 4y} \right)$

7.  $5a \cdot az \cdot z \cdot (-3a)$

3.  $u - \frac{z}{-z} \cdot uz$

8.  $x^2 + c - 5 - 7$

4.  $9u^2 \cdot (-1) \cdot \frac{63x^3}{-9x^2}$

9.  $7 \cdot 5u \cdot u^2 \cdot (-2u^2)$

5.  $\frac{8b^2}{8b^2} + a + b$

10.  $7v + 1 + a + 5a$

## Simplifying Expressions (G) Answers

Simplify each expression.

$$\begin{aligned} 1. y \cdot \left( -\frac{a^2y^3}{-ay \cdot y} \right) \\ = ay^2 \end{aligned}$$

$$\begin{aligned} 6. -7ux + \frac{4ux^2}{2x} + 10ux \\ = 5ux \end{aligned}$$

$$\begin{aligned} 2. y^2 \cdot \left( -\frac{32uy^2}{-8y \cdot 4y} \right) \\ = uy^2 \end{aligned}$$

$$\begin{aligned} 7. 5a \cdot az \cdot z \cdot (-3a) \\ = -15a^3z^2 \end{aligned}$$

$$\begin{aligned} 3. u - \frac{z}{-z} \cdot uz \\ = uz + u \end{aligned}$$

$$\begin{aligned} 8. x^2 + c - 5 - 7 \\ = x^2 + c - 12 \end{aligned}$$

$$\begin{aligned} 4. 9u^2 \cdot (-1) \cdot \frac{63x^3}{-9x^2} \\ = 63u^2x \end{aligned}$$

$$\begin{aligned} 9. 7 \cdot 5u \cdot u^2 \cdot (-2u^2) \\ = -70u^5 \end{aligned}$$

$$\begin{aligned} 5. \frac{8b^2}{8b^2} + a + b \\ = a + b + 1 \end{aligned}$$

$$\begin{aligned} 10. 7v + 1 + a + 5a \\ = 7v + 6a + 1 \end{aligned}$$

## Simplifying Expressions (H)

Simplify each expression.

1.  $-4u + x^2 + 9u \cdot u$

6.  $-1 \cdot \left(-\frac{4cy^2}{4c}\right) \cdot (-c)$

2.  $-\frac{10c^2y}{-10y} - \frac{c}{-c}$

7.  $1 - a + 6 + 1$

3.  $7b^2 - 1 - 3b^2 - 10bz$

8.  $1 - z - 2 - 4a$

4.  $5u^2 - a^2 \cdot \left(-\frac{u^3}{u}\right)$

9.  $-2u + 5a + 1 + a$

5.  $-b + u + 4bu + 2u$

10.  $\frac{x^3}{x} - \frac{8v^2x}{-vx}$

## Simplifying Expressions (H) Answers

Simplify each expression.

$$\begin{aligned} 1. & -4u + x^2 + 9u \cdot u \\ & = x^2 + 9u^2 - 4u \end{aligned}$$

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

$$\begin{aligned} 2. & -\frac{10c^2y}{-10y} - \frac{c}{-c} \\ & = c^2 + 1 \end{aligned}$$

$$\begin{aligned} 7. & 1 - a + 6 + 1 \\ & = -a + 8 \end{aligned}$$

$$\begin{aligned} 3. & 7b^2 - 1 - 3b^2 - 10bz \\ & = 4b^2 - 10bz - 1 \end{aligned}$$

$$\begin{aligned} 8. & 1 - z - 2 - 4a \\ & = -z - 4a - 1 \end{aligned}$$

$$\begin{aligned} 4. & 5u^2 - a^2 \cdot \left( -\frac{u^3}{u} \right) \\ & = a^2u^2 + 5u^2 \end{aligned}$$

$$\begin{aligned} 9. & -2u + 5a + 1 + a \\ & = -2u + 6a + 1 \end{aligned}$$

$$\begin{aligned} 5. & -b + u + 4bu + 2u \\ & = 4bu - b + 3u \end{aligned}$$

$$\begin{aligned} 10. & \frac{x^3}{x} - \frac{8v^2x}{-vx} \\ & = x^2 + 8v \end{aligned}$$



## Simplifying Expressions (I)

Simplify each expression.

1.  $-8v \cdot a + 2a + 1$

6.  $5ax \cdot (-8ax) \cdot (-3) \cdot 8a$

2.  $-\frac{12ax^3}{-x^2 \cdot 3x} - 3ax$

7.  $\frac{7x^2}{x} - \frac{28ax}{7ax}$

3.  $-c \cdot (-cu) \cdot \left(-\frac{3c}{3}\right)$

8.  $-\frac{y}{-y} + cy + 8c$

4.  $5 + \frac{9v^3}{9v} + 3v^2$

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

5.  $-8 - 3 + 7v^2 - v^2$

10.  $x^2 - 4v + \frac{vx}{vx}$

## Simplifying Expressions (I) Answers

Simplify each expression.

$$\begin{aligned} 1. & -8v \cdot a + 2a + 1 \\ & = -8av + 2a + 1 \end{aligned}$$

$$\begin{aligned} 6. & 5ax \cdot (-8ax) \cdot (-3) \cdot 8a \\ & = 960a^3x^2 \end{aligned}$$

$$\begin{aligned} 2. & -\frac{12ax^3}{-x^2 \cdot 3x} - 3ax \\ & = -3ax + 4a \end{aligned}$$

$$\begin{aligned} 7. & \frac{7x^2}{x} - \frac{28ax}{7ax} \\ & = 7x - 4 \end{aligned}$$

$$\begin{aligned} 3. & -c \cdot (-cu) \cdot \left(-\frac{3c}{3}\right) \\ & = -c^3u \end{aligned}$$

$$\begin{aligned} 8. & -\frac{y}{-y} + cy + 8c \\ & = cy + 8c + 1 \end{aligned}$$

$$\begin{aligned} 4. & 5 + \frac{9v^3}{9v} + 3v^2 \\ & = 4v^2 + 5 \end{aligned}$$

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

$$\begin{aligned} 5. & -8 - 3 + 7v^2 - v^2 \\ & = 6v^2 - 11 \end{aligned}$$

$$\begin{aligned} 10. & x^2 - 4v + \frac{vx}{vx} \\ & = x^2 - 4v + 1 \end{aligned}$$

## Simplifying Expressions (J)

Simplify each expression.

1.  $ux \cdot \frac{5x^2}{5 \cdot x^2}$

6.  $\frac{6}{6} + 2az + 6a$

2.  $8xz + \frac{6xz}{-1} - 10$

7.  $4z \cdot 3c + 1 + 2cz$

3.  $10bu \cdot 7b \cdot u + 10$

8.  $a \cdot 7a + 3 \cdot a$

4.  $z + \frac{vz}{-v} + 5z$

9.  $u \cdot (-8) \cdot (-u) \cdot (-10u)$

5.  $2bu \cdot (-bu) \cdot b^2 \cdot 5b$

10.  $-v^2 - 9 + z + 1$

## Simplifying Expressions (J) Answers

Simplify each expression.

$$1. \quad ux \cdot \frac{5x^2}{5 \cdot x^2} \\ = ux$$

$$6. \quad \frac{6}{6} + 2az + 6a \\ = 2az + 6a + 1$$

$$2. \quad 8xz + \frac{6xz}{-1} - 10 \\ = 2xz - 10$$

$$7. \quad 4z \cdot 3c + 1 + 2cz \\ = 14cz + 1$$

$$3. \quad 10bu \cdot 7b \cdot u + 10 \\ = 70b^2u^2 + 10$$

$$8. \quad a \cdot 7a + 3 \cdot a \\ = 7a^2 + 3a$$

$$4. \quad z + \frac{vz}{-v} + 5z \\ = 5z$$

$$9. \quad u \cdot (-8) \cdot (-u) \cdot (-10u) \\ = -80u^3$$

$$5. \quad 2bu \cdot (-bu) \cdot b^2 \cdot 5b \\ = -10b^5u^2$$

$$10. \quad -v^2 - 9 + z + 1 \\ = -v^2 + z - 8$$