

Simplifying Expressions (A)

Simplify each expression.

1. $-\frac{7uv^3}{-v^2} - \frac{50uv}{-5} + 1$

6. $x^2 + c + cx + x^2 - 1$

2. $\frac{4c^2z}{z} + \frac{c^3z}{c^2} + 3z$

7. $-1 + 1 - ab + 10a^2 + 7a$

3. $-\frac{3b^2v^3}{b \cdot 3v^2} + 4 \cdot b$

8. $-a^2 + b^2 + \frac{36}{6} + 9ab$

4. $-3u + 6u - 1 + c^2 + c$

9. $y - x + y + x^2 \cdot y$

5. $3 + 1 - z - uz - 1$

10. $-\frac{7x^2}{x} + 3 + \frac{10x}{x}$

Simplifying Expressions (A) Answers

Simplify each expression.

$$\begin{aligned} 1. \quad & -\frac{7uv^3}{-v^2} - \frac{50uv}{-5} + 1 \\ & = 17uv + 1 \end{aligned}$$

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

$$\begin{aligned} 2. \quad & \frac{4c^2z}{z} + \frac{c^3z}{c^2} + 3z \\ & = 4c^2 + cz + 3z \end{aligned}$$

$$\begin{aligned} 7. \quad & -1 + 1 - ab + 10a^2 + 7a \\ & = -ab + 10a^2 + 7a \end{aligned}$$

$$\begin{aligned} 3. \quad & -\frac{3b^2v^3}{b \cdot 3v^2} + 4 \cdot b \\ & = -bv + 4b \end{aligned}$$

$$\begin{aligned} 8. \quad & -a^2 + b^2 + \frac{36}{6} + 9ab \\ & = -a^2 + b^2 + 9ab + 6 \end{aligned}$$

$$\begin{aligned} 4. \quad & -3u + 6u - 1 + c^2 + c \\ & = c^2 + 3u + c - 1 \end{aligned}$$

$$\begin{aligned} 9. \quad & y - x + y + x^2 \cdot y \\ & = x^2y + 2y - x \end{aligned}$$

$$\begin{aligned} 5. \quad & 3 + 1 - z - uz - 1 \\ & = -uz - z + 3 \end{aligned}$$

$$\begin{aligned} 10. \quad & -\frac{7x^2}{x} + 3 + \frac{10x}{x} \\ & = -7x + 13 \end{aligned}$$

Simplifying Expressions (B)

Simplify each expression.

1. $\frac{5ac^2}{-c^2} + 8a^2 \cdot c \cdot (-7c)$

6. $1 - bc - \frac{10bc}{-10} + 10c$

2. $\frac{12a^2b}{-3ab} - 4ab + \frac{8ab}{2ab}$

7. $-c^2 - v + 9c^2 \cdot 9v^2 + 9c$

3. $y^2 + 7y^2 + \frac{30cy^2}{-6c} - y^2$

8. $b + 3 + 7c + 1 + 1$

4. $\frac{140y^2}{7y \cdot (-5y)} - 7y - 2$

9. $7az - 5a + \frac{a^2z^2}{az} + 1$

5. $-\frac{9u^2}{9} + 9v^2 + 10uv + 3$

10. $8 \cdot cz - 1 + 3c \cdot 2cz$

Simplifying Expressions (B) Answers

Simplify each expression.

$$\begin{aligned} 1. \quad & \frac{5ac^2}{-c^2} + 8a^2 \cdot c \cdot (-7c) \\ & = -56a^2c^2 - 5a \end{aligned}$$

$$\begin{aligned} 6. \quad & 1 - bc - \frac{10bc}{-10} + 10c \\ & = 10c + 1 \end{aligned}$$

$$\begin{aligned} 2. \quad & \frac{12a^2b}{-3ab} - 4ab + \frac{8ab}{2ab} \\ & = -4ab - 4a + 4 \end{aligned}$$

$$\begin{aligned} 7. \quad & -c^2 - v + 9c^2 \cdot 9v^2 + 9c \\ & = 81c^2v^2 - c^2 - v + 9c \end{aligned}$$

$$\begin{aligned} 3. \quad & y^2 + 7y^2 + \frac{30cy^2}{-6c} - y^2 \\ & = 2y^2 \end{aligned}$$

$$\begin{aligned} 8. \quad & b + 3 + 7c + 1 + 1 \\ & = b + 7c + 5 \end{aligned}$$

$$\begin{aligned} 4. \quad & \frac{140y^2}{7y \cdot (-5y)} - 7y - 2 \\ & = -7y - 6 \end{aligned}$$

$$\begin{aligned} 9. \quad & 7az - 5a + \frac{a^2z^2}{az} + 1 \\ & = 8az - 5a + 1 \end{aligned}$$

$$\begin{aligned} 5. \quad & -\frac{9u^2}{9} + 9v^2 + 10uv + 3 \\ & = -u^2 + 9v^2 + 10uv + 3 \end{aligned}$$

$$\begin{aligned} 10. \quad & 8 \cdot cz - 1 + 3c \cdot 2cz \\ & = 6c^2z + 8cz - 1 \end{aligned}$$

Simplifying Expressions (C)

Simplify each expression.

1. $8c^2 + 5z + z^2 - 5cz + cz$

6. $5 + 1 + 10z - \frac{7v^4}{-7v^2}$

2. $ay \cdot (-8) \cdot y \cdot (-a^2) \cdot (-a^2)$

7. $-\frac{112x^2z^4}{xz \cdot z \cdot (-7) \cdot 2xz}$

3. $4 \cdot y^2 \cdot 3y^2 \cdot (-8) \cdot (-1)$

8. $6 + v + 2v - v + x^2$

4. $-\frac{5}{-1} + 8x^2 \cdot \frac{8ux}{ux}$

9. $x^2 + a^2 - \frac{8ax^2}{-8a} - 3a$

5. $9 \cdot 10u^2 \cdot (-ux) \cdot \left(-\frac{2x}{-x}\right)$

10. $z - \frac{6x}{-x} + x^2 + 1$

Simplifying Expressions (C) Answers

Simplify each expression.

$$1. 8c^2 + 5z + z^2 - 5cz + cz \\ = 8c^2 + z^2 - 4cz + 5z$$

$$6. 5 + 1 + 10z - \frac{7v^4}{-7v^2} \\ = v^2 + 10z + 6$$

$$2. ay \cdot (-8) \cdot y \cdot (-a^2) \cdot (-a^2) \\ = -8a^5y^2$$

$$7. -\frac{112x^2z^4}{xz \cdot z \cdot (-7) \cdot 2xz} \\ = 8z$$

$$3. 4 \cdot y^2 \cdot 3y^2 \cdot (-8) \cdot (-1) \\ = 96y^4$$

$$8. 6 + v + 2v - v + x^2 \\ = x^2 + 2v + 6$$

$$4. -\frac{5}{-1} + 8x^2 \cdot \frac{8ux}{ux} \\ = 64x^2 + 5$$

$$9. x^2 + a^2 - \frac{8ax^2}{-8a} - 3a \\ = 2x^2 + a^2 - 3a$$

$$5. 9 \cdot 10u^2 \cdot (-ux) \cdot \left(-\frac{2x}{-x}\right) \\ = -180u^3x$$

$$10. z - \frac{6x}{-x} + x^2 + 1 \\ = x^2 + z + 7$$

Simplifying Expressions (D)

Simplify each expression.

1. $y + x + 1 + 1 - 9$

6. $-4 - ax + 6x + x - ax$

2. $2uv + \frac{5u^3v}{u \cdot 5uv} - v^2$

7. $9by + 8 + 9b^2 - \frac{b^2y^2}{b^2}$

3. $-7x \cdot bx \cdot \left(-\frac{30b^2x}{2b^2 \cdot 3}\right)$

8. $u^2 \cdot 4z + 4u^2 \cdot uz \cdot 3z^2$

4. $y^2 + y^2 \cdot 6y^2 + 1 + 10y$

9. $-2z^2 \cdot (-10) + z^2 + 4 \cdot (-2z)$

5. $-6 - 2u + bu + bu - 9$

10. $6 + 2 + 10 + a \cdot 7$

Simplifying Expressions (D) Answers

Simplify each expression.

$$\begin{aligned} 1. \quad & y + x + 1 + 1 - 9 \\ & = y + x - 7 \end{aligned}$$

$$\begin{aligned} 6. \quad & -4 - ax + 6x + x - ax \\ & = -2ax + 7x - 4 \end{aligned}$$

$$\begin{aligned} 2. \quad & 2uv + \frac{5u^3v}{u \cdot 5uv} - v^2 \\ & = 2uv - v^2 + u \end{aligned}$$

$$\begin{aligned} 7. \quad & 9by + 8 + 9b^2 - \frac{b^2y^2}{b^2} \\ & = 9by + 9b^2 - y^2 + 8 \end{aligned}$$

$$\begin{aligned} 3. \quad & -7x \cdot bx \cdot \left(-\frac{30b^2x}{2b^2 \cdot 3} \right) \\ & = 35bx^3 \end{aligned}$$

$$\begin{aligned} 8. \quad & u^2 \cdot 4z + 4u^2 \cdot uz \cdot 3z^2 \\ & = 12u^3z^3 + 4u^2z \end{aligned}$$

$$\begin{aligned} 4. \quad & y^2 + y^2 \cdot 6y^2 + 1 + 10y \\ & = 6y^4 + y^2 + 10y + 1 \end{aligned}$$

$$\begin{aligned} 9. \quad & -2z^2 \cdot (-10) + z^2 + 4 \cdot (-2z) \\ & = 21z^2 - 8z \end{aligned}$$

$$\begin{aligned} 5. \quad & -6 - 2u + bu + bu - 9 \\ & = 2bu - 2u - 15 \end{aligned}$$

$$\begin{aligned} 10. \quad & 6 + 2 + 10 + a \cdot 7 \\ & = 7a + 18 \end{aligned}$$

Simplifying Expressions (E)

Simplify each expression.

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

6. $1 - 10a^2 + 4 + ax - 3x$

2. $z \cdot 7v \cdot 7vz + 4 \cdot v^2$

7. $-y \cdot 4 \cdot 4z \cdot (-4yz) \cdot 9z^2$

3. $u^2 \cdot 8 \cdot (-y) \cdot 8 \cdot (-2)$

8. $1 - 7a^2 \cdot (-1) \cdot \frac{3b}{3}$

4. $9 + \frac{4y^2}{4y^2} - 6 + 4v$

9. $av \cdot (-1) + 9v^2 - 2v + 9v^2$

5. $1 - 8x - x - 10x - 2$

10. $4 \cdot (-1) \cdot 10 \cdot (-4x^2) \cdot (-x)$

Simplifying Expressions (E) Answers

Simplify each expression.

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

$$\begin{aligned} 6. & 1 - 10a^2 + 4 + ax - 3x \\ & = -10a^2 + ax - 3x + 5 \end{aligned}$$

$$\begin{aligned} 2. & z \cdot 7v \cdot 7vz + 4 \cdot v^2 \\ & = 49v^2z^2 + 4v^2 \end{aligned}$$

$$\begin{aligned} 7. & -y \cdot 4 \cdot 4z \cdot (-4yz) \cdot 9z^2 \\ & = 576y^2z^4 \end{aligned}$$

$$\begin{aligned} 3. & u^2 \cdot 8 \cdot (-y) \cdot 8 \cdot (-2) \\ & = 128u^2y \end{aligned}$$

$$\begin{aligned} 8. & 1 - 7a^2 \cdot (-1) \cdot \frac{3b}{3} \\ & = 7a^2b + 1 \end{aligned}$$

$$\begin{aligned} 4. & 9 + \frac{4y^2}{4y^2} - 6 + 4v \\ & = 4v + 4 \end{aligned}$$

$$\begin{aligned} 9. & av \cdot (-1) + 9v^2 - 2v + 9v^2 \\ & = -av + 18v^2 - 2v \end{aligned}$$

$$\begin{aligned} 5. & 1 - 8x - x - 10x - 2 \\ & = -19x - 1 \end{aligned}$$

$$\begin{aligned} 10. & 4 \cdot (-1) \cdot 10 \cdot (-4x^2) \cdot (-x) \\ & = -160x^3 \end{aligned}$$

Simplifying Expressions (F)

Simplify each expression.

1. $-\frac{18av}{-3av} - 3av \cdot 10v \cdot v$

6. $8 + \frac{63u^2}{7u} - \frac{3u}{3u}$

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

7. $-4v - \frac{4v}{4} + 1 + z$

3. $a - a^2 + a \cdot 5a - 6c$

8. $a^2 + 1 - 1 + 6z^2 + z$

4. $\frac{z^2}{z} + \frac{z^2}{z} + 5z$

9. $7 - vx + 5 - 3vx \cdot 8$

5. $7u + \frac{16ux}{8ux} \cdot 9 + 4$

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

Simplifying Expressions (F) Answers

Simplify each expression.

$$\begin{aligned} 1. \quad & -\frac{18av}{-3av} - 3av \cdot 10v \cdot v \\ & = -30av^3 + 6 \end{aligned}$$

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

$$\begin{aligned} 2. \quad & c + 1 + 5b - c + 1 \\ & = 5b + 2 \end{aligned}$$

$$\begin{aligned} 7. \quad & -4v - \frac{4v}{4} + 1 + z \\ & = -5v + z + 1 \end{aligned}$$

$$\begin{aligned} 3. \quad & a - a^2 + a \cdot 5a - 6c \\ & = 4a^2 + a - 6c \end{aligned}$$

$$\begin{aligned} 8. \quad & a^2 + 1 - 1 + 6z^2 + z \\ & = a^2 + 6z^2 + z \end{aligned}$$

$$\begin{aligned} 4. \quad & \frac{z^2}{z} + \frac{z^2}{z} + 5z \\ & = 7z \end{aligned}$$

$$\begin{aligned} 9. \quad & 7 - vx + 5 - 3vx \cdot 8 \\ & = -25vx + 12 \end{aligned}$$

$$\begin{aligned} 5. \quad & 7u + \frac{16ux}{8ux} \cdot 9 + 4 \\ & = 7u + 22 \end{aligned}$$

$$\begin{aligned} 10. \quad & -4x^2 - 10 - x^2 \cdot (-7x) - 4 \\ & = 7x^3 - 4x^2 - 14 \end{aligned}$$

Simplifying Expressions (G)

Simplify each expression.

1. $\frac{90az^2}{10 \cdot (-az)} + \frac{a^3}{a}$

6. $-v + v^2 - 1 + 1 + 10$

2. $\frac{7u}{7} \cdot 3v^2 \cdot (-2) + 9u^2$

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

3. $v \cdot \frac{10}{10} \cdot 3z \cdot (-10)$

8. $-1 - 4u^2 + 9cu + 2 + c$

4. $-\frac{v}{v} - 5v + 8c + c$

9. $a - 1 + 8a + ax + 8x$

5. $8a + 6a^2 - 1 + \frac{7a^3}{a}$

10. $9 + y^2 + uy - 10 - y$

Simplifying Expressions (G) Answers

Simplify each expression.

$$1. \frac{90az^2}{10 \cdot (-az)} + \frac{a^3}{a} \\ = a^2 - 9z$$

$$6. -v + v^2 - 1 + 1 + 10 \\ = v^2 - v + 10$$

$$2. \frac{7u}{7} \cdot 3v^2 \cdot (-2) + 9u^2 \\ = -6uv^2 + 9u^2$$

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

$$3. v \cdot \frac{10}{10} \cdot 3z \cdot (-10) \\ = -30vz$$

$$8. -1 - 4u^2 + 9cu + 2 + c \\ = -4u^2 + 9cu + c + 1$$

$$4. -\frac{v}{v} - 5v + 8c + c \\ = -5v + 9c - 1$$

$$9. a - 1 + 8a + ax + 8x \\ = ax + 9a + 8x - 1$$

$$5. 8a + 6a^2 - 1 + \frac{7a^3}{a} \\ = 13a^2 + 8a - 1$$

$$10. 9 + y^2 + uy - 10 - y \\ = y^2 + uy - y - 1$$

Simplifying Expressions (H)

Simplify each expression.

1. $y^2 - \frac{9y^2}{-9y} - y + y$

6. $\frac{z}{-z} + 10uz \cdot u \cdot 2$

2. $6y^2 + y^2 - 4y^2 - 7y \cdot y$

7. $\frac{2u^2}{-u^2} - \frac{5u^2v}{-uv} - v^2$

3. $3c - \frac{5cv^2}{-5v} - 9c + cv$

8. $-\frac{7a}{-a} + 6av + 8a + 5v$

4. $4z + z - 1 + a + 5z$

9. $y \cdot c + 5y^2 \cdot \frac{3cy^2}{3c}$

5. $7 + 6 + 1 + 9 + 8z$

10. $4 + au + au + 10 + 4$

Simplifying Expressions (H) Answers

Simplify each expression.

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

$$\begin{aligned} 6. \quad & \frac{z}{-z} + 10uz \cdot u \cdot 2 \\ & = 20u^2z - 1 \end{aligned}$$

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

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

$$\begin{aligned} 3. \quad & 3c - \frac{5cv^2}{-5v} - 9c + cv \\ & = 2cv - 6c \end{aligned}$$

$$\begin{aligned} 8. \quad & -\frac{7a}{-a} + 6av + 8a + 5v \\ & = 6av + 8a + 5v + 7 \end{aligned}$$

$$\begin{aligned} 4. \quad & 4z + z - 1 + a + 5z \\ & = 10z + a - 1 \end{aligned}$$

$$\begin{aligned} 9. \quad & y \cdot c + 5y^2 \cdot \frac{3cy^2}{3c} \\ & = 5y^4 + cy \end{aligned}$$

$$\begin{aligned} 5. \quad & 7 + 6 + 1 + 9 + 8z \\ & = 8z + 23 \end{aligned}$$

$$\begin{aligned} 10. \quad & 4 + au + au + 10 + 4 \\ & = 2au + 18 \end{aligned}$$

Simplifying Expressions (I)

Simplify each expression.

1. $6uv \cdot v \cdot u^2 + 8 + 5v^2$

6. $3 - a - y + 1 - 9$

2. $8u^2 + c + 6 - 2cu - 1$

7. $1 + u + \frac{9uz}{9} - 4u$

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

8. $5y^2 \cdot \frac{cy^2}{-y} + \frac{27cy^2}{9y^2}$

4. $y + 1 + \frac{6yz^3}{2yz} - 1$

9. $4b^2 + 9by + 3 + 7y^2 \cdot 10$

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

10. $-\frac{5ay^2}{-y^2} - y - 2y + 3a$

Simplifying Expressions (I) Answers

Simplify each expression.

$$\begin{aligned} 1. & 6uv \cdot v \cdot u^2 + 8 + 5v^2 \\ & = 6u^3v^2 + 5v^2 + 8 \end{aligned}$$

$$\begin{aligned} 6. & 3 - a - y + 1 - 9 \\ & = -a - y - 5 \end{aligned}$$

$$\begin{aligned} 2. & 8u^2 + c + 6 - 2cu - 1 \\ & = 8u^2 - 2cu + c + 5 \end{aligned}$$

$$\begin{aligned} 7. & 1 + u + \frac{9uz}{9} - 4u \\ & = uz - 3u + 1 \end{aligned}$$

$$\begin{aligned} 3. & -\frac{10c^2x}{-10cx} - c^2 \cdot (-cx) \cdot cx \\ & = c^4x^2 + c \end{aligned}$$

$$\begin{aligned} 8. & 5y^2 \cdot \frac{cy^2}{-y} + \frac{27cy^2}{9y^2} \\ & = -5cy^3 + 3c \end{aligned}$$

$$\begin{aligned} 4. & y + 1 + \frac{6yz^3}{2yz} - 1 \\ & = 3z^2 + y \end{aligned}$$

$$\begin{aligned} 9. & 4b^2 + 9by + 3 + 7y^2 \cdot 10 \\ & = 4b^2 + 9by + 70y^2 + 3 \end{aligned}$$

$$\begin{aligned} 5. & -y - 10y + x - 2 - 1 \\ & = -11y + x - 3 \end{aligned}$$

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

Simplifying Expressions (J)

Simplify each expression.

1. $-\frac{10x^3}{10x^2} - \frac{54v}{6} + 5x^2$

6. $-3 + 3 \cdot (-7) \cdot z + 10$

2. $5x + 6v^2 + 1 - x^2 + 3$

7. $3u + \frac{14u^3}{7u^2} - a + 9a$

3. $-1 - \frac{18x}{-6} + 4x^2 + x$

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

4. $6 + 1 + 1 + cu - 4c^2$

9. $y \cdot 4 \cdot (-8z) \cdot 10z^2 \cdot (-5y)$

5. $-\frac{8b}{-1} - b + 8 \cdot ab$

10. $6cx - 5 + 3 + 10x - x^2$

Simplifying Expressions (J) Answers

Simplify each expression.

$$\begin{aligned} 1. \quad & -\frac{10x^3}{10x^2} - \frac{54v}{6} + 5x^2 \\ & = 5x^2 - x - 9v \end{aligned}$$

$$\begin{aligned} 6. \quad & -3 + 3 \cdot (-7) \cdot z + 10 \\ & = -21z + 7 \end{aligned}$$

$$\begin{aligned} 2. \quad & 5x + 6v^2 + 1 - x^2 + 3 \\ & = 6v^2 - x^2 + 5x + 4 \end{aligned}$$

$$\begin{aligned} 7. \quad & 3u + \frac{14u^3}{7u^2} - a + 9a \\ & = 5u + 8a \end{aligned}$$

$$\begin{aligned} 3. \quad & -1 - \frac{18x}{-6} + 4x^2 + x \\ & = 4x^2 + 4x - 1 \end{aligned}$$

$$\begin{aligned} 8. \quad & -8z^2 \cdot 4z \cdot (-8z^2) \cdot (-3z) \cdot 2z \\ & = -1536z^7 \end{aligned}$$

$$\begin{aligned} 4. \quad & 6 + 1 + 1 + cu - 4c^2 \\ & = cu - 4c^2 + 8 \end{aligned}$$

$$\begin{aligned} 9. \quad & y \cdot 4 \cdot (-8z) \cdot 10z^2 \cdot (-5y) \\ & = 1600y^2z^3 \end{aligned}$$

$$\begin{aligned} 5. \quad & -\frac{8b}{-1} - b + 8 \cdot ab \\ & = 8ab + 7b \end{aligned}$$

$$\begin{aligned} 10. \quad & 6cx - 5 + 3 + 10x - x^2 \\ & = 6cx - x^2 + 10x - 2 \end{aligned}$$