

Simplifying Expressions (A)

Simplify each expression.

1. $8c^2 \cdot \frac{720c^4}{9c^2 \cdot (-8c)}$

6. $6z - 5 + z^2 + z^2$

2. $5b^2 - b^2 + 8b^2 - b$

7. $-1 \cdot \frac{7y^4}{7y^2} \cdot (-y)$

3. $\frac{9b^4}{-b^2 \cdot (-b^2)} \cdot b$

8. $-c + 1 - c^2 + 4$

4. $7z^2 + z^2 + z - z$

9. $\frac{y}{y} - \frac{20y^2}{-4y}$

5. $a^2 + a + a + 9a^2$

10. $c \cdot \frac{70c^4}{10c^2} - c$

Simplifying Expressions (A) Answers

Simplify each expression.

$$\begin{aligned} 1. \quad & 8c^2 \cdot \frac{720c^4}{9c^2 \cdot (-8c)} \\ & = -80c^3 \end{aligned}$$

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

$$\begin{aligned} 2. \quad & 5b^2 - b^2 + 8b^2 - b \\ & = 12b^2 - b \end{aligned}$$

$$\begin{aligned} 7. \quad & -1 \cdot \frac{7y^4}{7y^2} \cdot (-y) \\ & = y^3 \end{aligned}$$

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

$$\begin{aligned} 8. \quad & -c + 1 - c^2 + 4 \\ & = -c^2 - c + 5 \end{aligned}$$

$$\begin{aligned} 4. \quad & 7z^2 + z^2 + z - z \\ & = 8z^2 \end{aligned}$$

$$\begin{aligned} 9. \quad & \frac{y}{y} - \frac{20y^2}{-4y} \\ & = 5y + 1 \end{aligned}$$

$$\begin{aligned} 5. \quad & a^2 + a + a + 9a^2 \\ & = 10a^2 + 2a \end{aligned}$$

$$\begin{aligned} 10. \quad & c \cdot \frac{70c^4}{10c^2} - c \\ & = 7c^3 - c \end{aligned}$$

Simplifying Expressions (B)

Simplify each expression.

1. $-\frac{8z^3}{z^2} + \frac{z^4}{z^2}$

6. $b^2 + 10b^2 - b^2 + 6b^2$

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

7. $-10z \cdot \left(-\frac{8z^2}{8z^2}\right) - 6z^2$

3. $v - \frac{8v^4}{v^2} + v$

8. $2 - y - y + y$

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

9. $-c + c - c^2 + 7c^2$

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

10. $-\frac{3v}{-3} \cdot v - v$

Simplifying Expressions (B) Answers

Simplify each expression.

$$\begin{aligned} 1. & -\frac{8z^3}{z^2} + \frac{z^4}{z^2} \\ & = z^2 - 8z \end{aligned}$$

$$\begin{aligned} 6. & b^2 + 10b^2 - b^2 + 6b^2 \\ & = 16b^2 \end{aligned}$$

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

$$\begin{aligned} 7. & -10z \cdot \left(-\frac{8z^2}{8z^2}\right) - 6z^2 \\ & = -6z^2 + 10z \end{aligned}$$

$$\begin{aligned} 3. & v - \frac{8v^4}{v^2} + v \\ & = -8v^2 + 2v \end{aligned}$$

$$\begin{aligned} 8. & 2 - y - y + y \\ & = -y + 2 \end{aligned}$$

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

$$\begin{aligned} 9. & -c + c - c^2 + 7c^2 \\ & = 6c^2 \end{aligned}$$

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

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

Simplifying Expressions (C)

Simplify each expression.

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

6. $8u + u + 10u + 6$

2. $v - \frac{10v}{10} + v$

7. $u^2 + 8u^2 + u \cdot (-7u^2)$

3. $7 + b + 1 + 4b$

8. $-\frac{9c^4}{c^2} - \frac{3}{-1}$

4. $v^2 - v^2 - 5v + 2$

9. $-1 + \frac{x^2}{x} + 7$

5. $8 + 8 + 1 + x$

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

Simplifying Expressions (C) Answers

Simplify each expression.

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

$$\begin{aligned} 6. \quad & 8u + u + 10u + 6 \\ & = 19u + 6 \end{aligned}$$

$$\begin{aligned} 2. \quad & v - \frac{10v}{10} + v \\ & = v \end{aligned}$$

$$\begin{aligned} 7. \quad & u^2 + 8u^2 + u \cdot (-7u^2) \\ & = -7u^3 + 9u^2 \end{aligned}$$

$$\begin{aligned} 3. \quad & 7 + b + 1 + 4b \\ & = 5b + 8 \end{aligned}$$

$$\begin{aligned} 8. \quad & -\frac{9c^4}{c^2} - \frac{3}{-1} \\ & = -9c^2 + 3 \end{aligned}$$

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

$$\begin{aligned} 9. \quad & -1 + \frac{x^2}{x} + 7 \\ & = x + 6 \end{aligned}$$

$$\begin{aligned} 5. \quad & 8 + 8 + 1 + x \\ & = x + 17 \end{aligned}$$

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

Simplifying Expressions (D)

Simplify each expression.

1. $\frac{c}{c} + 9c^2 + 3$

6. $10 + 1 - a + 4a$

2. $-\frac{12z^4}{z \cdot (-6) \cdot 2z}$

7. $u \cdot 2u \cdot 4u^2 + u^2$

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

8. $6u \cdot \frac{48u^4}{6u^2 \cdot 2}$

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

9. $-5 + 2c^2 - c^2 + c^2$

5. $-8b - \frac{20b^3}{-5b^2} + 8b$

10. $a - \frac{9}{9} - a^2$

Simplifying Expressions (D) Answers

Simplify each expression.

$$\begin{aligned} 1. \quad & \frac{c}{c} + 9c^2 + 3 \\ & = 9c^2 + 4 \end{aligned}$$

$$\begin{aligned} 6. \quad & 10 + 1 - a + 4a \\ & = 3a + 11 \end{aligned}$$

$$\begin{aligned} 2. \quad & -\frac{12z^4}{z \cdot (-6) \cdot 2z} \\ & = z^2 \end{aligned}$$

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

$$\begin{aligned} 3. \quad & 7b - 5 - \frac{b^3}{-b} \\ & = b^2 + 7b - 5 \end{aligned}$$

$$\begin{aligned} 8. \quad & 6u \cdot \frac{48u^4}{6u^2 \cdot 2} \\ & = 24u^3 \end{aligned}$$

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

$$\begin{aligned} 9. \quad & -5 + 2c^2 - c^2 + c^2 \\ & = 2c^2 - 5 \end{aligned}$$

$$\begin{aligned} 5. \quad & -8b - \frac{20b^3}{-5b^2} + 8b \\ & = 4b \end{aligned}$$

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

Simplifying Expressions (E)

Simplify each expression.

1. $1 - 9a + \frac{a^3}{a}$

6. $-3x^2 \cdot 10x + \frac{2x^3}{x}$

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

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

3. $-9z - \frac{70z^2}{10} + 8$

8. $b^2 - 4b^2 + b^2 + 4b^2$

4. $x - 1 + 2 + 1$

9. $4 + u^2 + \frac{48}{6}$

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

10. $y + y \cdot y^2 \cdot (-1)$

Simplifying Expressions (E) Answers

Simplify each expression.

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

$$\begin{aligned} 6. \quad & -3x^2 \cdot 10x + \frac{2x^3}{x} \\ & = -30x^3 + 2x^2 \end{aligned}$$

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

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

$$\begin{aligned} 3. \quad & -9z - \frac{70z^2}{10} + 8 \\ & = -7z^2 - 9z + 8 \end{aligned}$$

$$\begin{aligned} 8. \quad & b^2 - 4b^2 + b^2 + 4b^2 \\ & = 2b^2 \end{aligned}$$

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

$$\begin{aligned} 9. \quad & 4 + u^2 + \frac{48}{6} \\ & = u^2 + 12 \end{aligned}$$

$$\begin{aligned} 5. \quad & -b \cdot (-7) + \frac{8b^3}{8b^2} \\ & = 8b \end{aligned}$$

$$\begin{aligned} 10. \quad & y + y \cdot y^2 \cdot (-1) \\ & = -y^3 + y \end{aligned}$$

Simplifying Expressions (F)

Simplify each expression.

1. $z - z + 1 + 10z$

6. $4c + \frac{2c^2}{2c^2} - 1$

2. $\frac{42y}{7y} + y + 9$

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

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

8. $-1 - \frac{10z^3}{z} + 7z$

4. $4 - 7 + a + 3$

9. $u + 5u + 8u + 5$

5. $\frac{8a^3}{a^2} - \frac{a^3}{-a}$

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

Simplifying Expressions (F) Answers

Simplify each expression.

$$1. z - z + 1 + 10z \\ = 10z + 1$$

$$6. 4c + \frac{2c^2}{2c^2} - 1 \\ = 4c$$

$$2. \frac{42y}{7y} + y + 9 \\ = y + 15$$

$$7. \frac{5v^3}{v^2} + v^2 + v \\ = v^2 + 6v$$

$$3. 1 + 6x^2 - 2x + 1 \\ = 6x^2 - 2x + 2$$

$$8. -1 - \frac{10z^3}{z} + 7z \\ = -10z^2 + 7z - 1$$

$$4. 4 - 7 + a + 3 \\ = a$$

$$9. u + 5u + 8u + 5 \\ = 14u + 5$$

$$5. \frac{8a^3}{a^2} - \frac{a^3}{-a} \\ = a^2 + 8a$$

$$10. x^2 + x - x + 1 \\ = x^2 + 1$$

Simplifying Expressions (G)

Simplify each expression.

1. $2 + 1 + 6 + y^2$

6. $7u - \frac{4}{4} + u$

2. $4z^2 \cdot z^2 - 1 \cdot z$

7. $-6c + 1 + c - 4c^2$

3. $z \cdot (-5z^2) - 1 + 7z^2$

8. $1 + 6u - \frac{4u^2}{4u}$

4. $-\frac{35a^3}{-5a} - \frac{42a^2}{-7a^2}$

9. $1 + z - 1 - 7$

5. $6z^2 \cdot z \cdot \frac{28z^2}{-4z^2}$

10. $-\frac{27u^3}{-9u} - 7 - 5$

Simplifying Expressions (G) Answers

Simplify each expression.

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

$$\begin{aligned} 6. \quad & 7u - \frac{4}{4} + u \\ & = 8u - 1 \end{aligned}$$

$$\begin{aligned} 2. \quad & 4z^2 \cdot z^2 - 1 \cdot z \\ & = 4z^4 - z \end{aligned}$$

$$\begin{aligned} 7. \quad & -6c + 1 + c - 4c^2 \\ & = -4c^2 - 5c + 1 \end{aligned}$$

$$\begin{aligned} 3. \quad & z \cdot (-5z^2) - 1 + 7z^2 \\ & = -5z^3 + 7z^2 - 1 \end{aligned}$$

$$\begin{aligned} 8. \quad & 1 + 6u - \frac{4u^2}{4u} \\ & = 5u + 1 \end{aligned}$$

$$\begin{aligned} 4. \quad & -\frac{35a^3}{-5a} - \frac{42a^2}{-7a^2} \\ & = 7a^2 + 6 \end{aligned}$$

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

$$\begin{aligned} 5. \quad & 6z^2 \cdot z \cdot \frac{28z^2}{-4z^2} \\ & = -42z^3 \end{aligned}$$

$$\begin{aligned} 10. \quad & -\frac{27u^3}{-9u} - 7 - 5 \\ & = 3u^2 - 12 \end{aligned}$$

Simplifying Expressions (H)

Simplify each expression.

1. $-v^2 - 4v^2 + 1 - 2$

6. $10z \cdot (-z) \cdot z + 7z^2$

2. $y \cdot (-7y^2) \cdot \frac{10y^2}{-10}$

7. $-8 - 1 + y + y$

3. $-\frac{56x}{7} - 10x^2 + 1$

8. $2u + \frac{4}{4} - u^2$

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

9. $u + 1 - u^2 + u^2$

5. $u^2 + \frac{49}{7} - 8u^2$

10. $-10 + 8c^2 + 4c + 2c^2$

Simplifying Expressions (H) Answers

Simplify each expression.

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

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

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

$$\begin{aligned} 7. & -8 - 1 + y + y \\ & = 2y - 9 \end{aligned}$$

$$\begin{aligned} 3. & -\frac{56x}{7} - 10x^2 + 1 \\ & = -10x^2 - 8x + 1 \end{aligned}$$

$$\begin{aligned} 8. & 2u + \frac{4}{4} - u^2 \\ & = -u^2 + 2u + 1 \end{aligned}$$

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

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

$$\begin{aligned} 5. & u^2 + \frac{49}{7} - 8u^2 \\ & = -7u^2 + 7 \end{aligned}$$

$$\begin{aligned} 10. & -10 + 8c^2 + 4c + 2c^2 \\ & = 10c^2 + 4c - 10 \end{aligned}$$

Simplifying Expressions (I)

Simplify each expression.

1. $-1 + z^2 + z - 7z$

6. $v^2 + 2v + v + 5$

2. $\frac{b^3}{b^2} \cdot 9 \cdot 2$

7. $\frac{9u}{9} - 1 - 3$

3. $-4u^2 + 9u^2 + 1 + 7$

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

4. $9 \cdot a \cdot (-8a) + a$

9. $-\frac{36c^5}{-4c \cdot (-9c^2) \cdot c}$

5. $9u + u^2 + 8 + 6$

10. $\frac{x^3}{x} + x + 9x$

Simplifying Expressions (I) Answers

Simplify each expression.

$$\begin{aligned} 1. & -1 + z^2 + z - 7z \\ & = z^2 - 6z - 1 \end{aligned}$$

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

$$\begin{aligned} 2. & \frac{b^3}{b^2} \cdot 9 \cdot 2 \\ & = 18b \end{aligned}$$

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

$$\begin{aligned} 3. & -4u^2 + 9u^2 + 1 + 7 \\ & = 5u^2 + 8 \end{aligned}$$

$$\begin{aligned} 8. & 6b + \frac{b^3}{b^2} - 7b^2 \\ & = -7b^2 + 7b \end{aligned}$$

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

$$\begin{aligned} 9. & -\frac{36c^5}{-4c \cdot (-9c^2) \cdot c} \\ & = -c \end{aligned}$$

$$\begin{aligned} 5. & 9u + u^2 + 8 + 6 \\ & = u^2 + 9u + 14 \end{aligned}$$

$$\begin{aligned} 10. & \frac{x^3}{x} + x + 9x \\ & = x^2 + 10x \end{aligned}$$

Simplifying Expressions (J)

Simplify each expression.

1. $\frac{21u^3}{7u} + \frac{4u^4}{-4u^2}$

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

2. $-a^2 + \frac{60a}{6} + a$

7. $\frac{8v^2}{v} + v + 5$

3. $1 + 8y^2 \cdot \frac{30y}{-3}$

8. $6u^2 + u + 3u^2 + 1$

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

9. $-3v^2 + v^2 - v^2 + 4v$

5. $-\frac{9v^4}{-v^2} - \frac{30v^2}{-10}$

10. $\frac{40u^2}{4} + u^2 - 10$

Simplifying Expressions (J) Answers

Simplify each expression.

$$\begin{aligned} 1. \quad & \frac{21u^3}{7u} + \frac{4u^4}{-4u^2} \\ & = 2u^2 \end{aligned}$$

$$\begin{aligned} 6. \quad & -c \cdot (-9) - c^2 + 1 \\ & = -c^2 + 9c + 1 \end{aligned}$$

$$\begin{aligned} 2. \quad & -a^2 + \frac{60a}{6} + a \\ & = -a^2 + 11a \end{aligned}$$

$$\begin{aligned} 7. \quad & \frac{8v^2}{v} + v + 5 \\ & = 9v + 5 \end{aligned}$$

$$\begin{aligned} 3. \quad & 1 + 8y^2 \cdot \frac{30y}{-3} \\ & = -80y^3 + 1 \end{aligned}$$

$$\begin{aligned} 8. \quad & 6u^2 + u + 3u^2 + 1 \\ & = 9u^2 + u + 1 \end{aligned}$$

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

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

$$\begin{aligned} 5. \quad & -\frac{9v^4}{-v^2} - \frac{30v^2}{-10} \\ & = 12v^2 \end{aligned}$$

$$\begin{aligned} 10. \quad & \frac{40u^2}{4} + u^2 - 10 \\ & = 11u^2 - 10 \end{aligned}$$