

Simplifying Expressions (A)

Simplify each expression.

1. $5 - a - 1 + c - 6a^2 + a^2$

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

2. $4z - z + vz + 1 + 1 + 2z$

7. $6z + u - 1 + 1 + 2 + 4u^2$

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

8. $v + 4v - y + 2 + 6vy + y$

4. $-6z^2 - z^2 + 3z + 1 + z^2 - z$

9. $-6 + 2y - y + 2 + 2y^2 + 4y$

5. $5 - x^2 - 4x^2 + 1 + x + 6x^2$

10. $v + 1 + 5y + y + 2y^2 + 6$

Simplifying Expressions (A) Answers

Simplify each expression.

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

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

$$\begin{aligned} 2. \quad & 4z - z + vz + 1 + 1 + 2z \\ & = vz + 5z + 2 \end{aligned}$$

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

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

$$\begin{aligned} 8. \quad & v + 4v - y + 2 + 6vy + y \\ & = 6vy + 5v + 2 \end{aligned}$$

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

$$\begin{aligned} 9. \quad & -6 + 2y - y + 2 + 2y^2 + 4y \\ & = 2y^2 + 5y - 4 \end{aligned}$$

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

$$\begin{aligned} 10. \quad & v + 1 + 5y + y + 2y^2 + 6 \\ & = 2y^2 + v + 6y + 7 \end{aligned}$$

Simplifying Expressions (B)

Simplify each expression.

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

6. $-u + u^2 + uy + y^2 + y + y^2$

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

7. $6 + 4ux + 2u - u^2 - 1 + 4$

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

8. $5cy + c - 3 + cy - 6cy + 3$

4. $-v - 5v + 1 + 2z - vz + 1$

9. $1 + 2 + a^2 + ay + 5y - y$

5. $bv + 1 + 6b + 5 + 6 + 6$

10. $3 - u + 1 - 4v + uv - u$

Simplifying Expressions (B) Answers

Simplify each expression.

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

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

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

$$\begin{aligned} 7. \quad & 6 + 4ux + 2u - u^2 - 1 + 4 \\ & = 4ux - u^2 + 2u + 9 \end{aligned}$$

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

$$\begin{aligned} 8. \quad & 5cy + c - 3 + cy - 6cy + 3 \\ & = c \end{aligned}$$

$$\begin{aligned} 4. \quad & -v - 5v + 1 + 2z - vz + 1 \\ & = -vz - 6v + 2z + 2 \end{aligned}$$

$$\begin{aligned} 9. \quad & 1 + 2 + a^2 + ay + 5y - y \\ & = a^2 + ay + 4y + 3 \end{aligned}$$

$$\begin{aligned} 5. \quad & bv + 1 + 6b + 5 + 6 + 6 \\ & = bv + 6b + 18 \end{aligned}$$

$$\begin{aligned} 10. \quad & 3 - u + 1 - 4v + uv - u \\ & = uv - 2u - 4v + 4 \end{aligned}$$

Simplifying Expressions (C)

Simplify each expression.

1. $z + 1 + 1 + 3 + z - xz$

6. $1 - 5u + a + u - 1 - a^2$

2. $2ax - 4ax + 3ax + ax + 3x + 4$

7. $4 + 6b - b^2 + 3b + 1 + 2$

3. $-6vz + 3v - 4vz + vz - 2 + vz$

8. $1 - 4x^2 + 4y - x + 5 + 4x$

4. $-5 - 3u + 1 + 2y + 5 + 5uy$

9. $2by + 1 + b + 4y + b + by$

5. $6v + 1 - 3 - 1 + 1 + 6v$

10. $-u + 1 + 5b^2 + b - 3b - 5b^2$

Simplifying Expressions (C) Answers

Simplify each expression.

$$\begin{aligned} 1. \quad & z + 1 + 1 + 3 + z - xz \\ & = -xz + 2z + 5 \end{aligned}$$

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

$$\begin{aligned} 2. \quad & 2ax - 4ax + 3ax + ax + 3x + 4 \\ & = 2ax + 3x + 4 \end{aligned}$$

$$\begin{aligned} 7. \quad & 4 + 6b - b^2 + 3b + 1 + 2 \\ & = -b^2 + 9b + 7 \end{aligned}$$

$$\begin{aligned} 3. \quad & -6vz + 3v - 4vz + vz - 2 + vz \\ & = -8vz + 3v - 2 \end{aligned}$$

$$\begin{aligned} 8. \quad & 1 - 4x^2 + 4y - x + 5 + 4x \\ & = -4x^2 + 4y + 3x + 6 \end{aligned}$$

$$\begin{aligned} 4. \quad & -5 - 3u + 1 + 2y + 5 + 5uy \\ & = 5uy - 3u + 2y + 1 \end{aligned}$$

$$\begin{aligned} 9. \quad & 2by + 1 + b + 4y + b + by \\ & = 3by + 2b + 4y + 1 \end{aligned}$$

$$\begin{aligned} 5. \quad & 6v + 1 - 3 - 1 + 1 + 6v \\ & = 12v - 2 \end{aligned}$$

$$\begin{aligned} 10. \quad & -u + 1 + 5b^2 + b - 3b - 5b^2 \\ & = -u - 2b + 1 \end{aligned}$$

Simplifying Expressions (D)

Simplify each expression.

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

6. $b + 1 + z^2 + 6 + 6 - 4$

2. $-6b - 6y + 4b^2 + 6 + b^2 + 5y$

7. $2u + 4uy - 1 + y - 1 - 6$

3. $-4u + 1 + u^2 + 1 + 3 + 5a^2$

8. $-5 - uz - 3u^2 - 4u + u - 4z$

4. $-az + 5 + 6a^2 - 1 - a^2 - 2z^2$

9. $-1 + 1 + v + 4 + bv + 6$

5. $-4z^2 + 2cz - c - c - cz + c$

10. $b^2 - 3b^2 - b^2 + bc + 1 - 5b$

Simplifying Expressions (D) Answers

Simplify each expression.

$$\begin{aligned} 1. & x^2 + 4 + x - 2 + 4 + 1 \\ & = x^2 + x + 7 \end{aligned}$$

$$\begin{aligned} 6. & b + 1 + z^2 + 6 + 6 - 4 \\ & = z^2 + b + 9 \end{aligned}$$

$$\begin{aligned} 2. & -6b - 6y + 4b^2 + 6 + b^2 + 5y \\ & = 5b^2 - 6b - y + 6 \end{aligned}$$

$$\begin{aligned} 7. & 2u + 4uy - 1 + y - 1 - 6 \\ & = 4uy + 2u + y - 8 \end{aligned}$$

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

$$\begin{aligned} 8. & -5 - uz - 3u^2 - 4u + u - 4z \\ & = -uz - 3u^2 - 3u - 4z - 5 \end{aligned}$$

$$\begin{aligned} 4. & -az + 5 + 6a^2 - 1 - a^2 - 2z^2 \\ & = -az + 5a^2 - 2z^2 + 4 \end{aligned}$$

$$\begin{aligned} 9. & -1 + 1 + v + 4 + bv + 6 \\ & = bv + v + 10 \end{aligned}$$

$$\begin{aligned} 5. & -4z^2 + 2cz - c - c - cz + c \\ & = -4z^2 + cz - c \end{aligned}$$

$$\begin{aligned} 10. & b^2 - 3b^2 - b^2 + bc + 1 - 5b \\ & = -3b^2 + bc - 5b + 1 \end{aligned}$$

Simplifying Expressions (E)

Simplify each expression.

1. $av + v - av - 1 + 3v + 4$

6. $bz + 2b + 1 + 4b - z^2 + b^2$

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

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

3. $au + 1 - 3u - u^2 - 6a + 6au$

8. $2ac + 1 + ac + 5a + a - 2c^2$

4. $b + x^2 + b^2 - 1 - bx + 2b$

9. $-3x^2 + xz - 1 + x^2 - 1 + 1$

5. $z^2 - 5 + 5x + 5 + x^2 + 4x^2$

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

Simplifying Expressions (E) Answers

Simplify each expression.

$$1. \quad av + v - av - 1 + 3v + 4 \\ = 4v + 3$$

$$6. \quad bz + 2b + 1 + 4b - z^2 + b^2 \\ = bz - z^2 + b^2 + 6b + 1$$

$$2. \quad b - bx + b^2 - bx - 3bx - b \\ = -5bx + b^2$$

$$7. \quad z^2 + c + 4c + c + 1 + 6 \\ = z^2 + 6c + 7$$

$$3. \quad au + 1 - 3u - u^2 - 6a + 6au \\ = 7au - u^2 - 3u - 6a + 1$$

$$8. \quad 2ac + 1 + ac + 5a + a - 2c^2 \\ = 3ac - 2c^2 + 6a + 1$$

$$4. \quad b + x^2 + b^2 - 1 - bx + 2b \\ = x^2 + b^2 - bx + 3b - 1$$

$$9. \quad -3x^2 + xz - 1 + x^2 - 1 + 1 \\ = -2x^2 + xz - 1$$

$$5. \quad z^2 - 5 + 5x + 5 + x^2 + 4x^2 \\ = z^2 + 5x^2 + 5x$$

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

Simplifying Expressions (F)

Simplify each expression.

1. $-6c + c^2 - 6x + 4cx - x + 1$

6. $c - cx - 4 - 1 - 1 - 5c$

2. $y - u^2 + 5 - 1 - y + y$

7. $-6uv + v - v + v^2 - 2 - 2u^2$

3. $-1 + 1 + 3 - 1 - 6bu - 5u^2$

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

4. $6 + 3y + 6y^2 - y^2 - y^2 + y$

9. $a^2 + 1 - 2a + 6b - 3b^2 - a^2$

5. $-a + u + 1 + 5 + au - a^2$

10. $c + 1 - x^2 + 1 + 5x^2 + 6c^2$

Simplifying Expressions (F) Answers

Simplify each expression.

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

$$\begin{aligned} 6. & c - cx - 4 - 1 - 1 - 5c \\ & = -cx - 4c - 6 \end{aligned}$$

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

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

$$\begin{aligned} 3. & -1 + 1 + 3 - 1 - 6bu - 5u^2 \\ & = -6bu - 5u^2 + 2 \end{aligned}$$

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

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

$$\begin{aligned} 9. & a^2 + 1 - 2a + 6b - 3b^2 - a^2 \\ & = -3b^2 - 2a + 6b + 1 \end{aligned}$$

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

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

Simplifying Expressions (G)

Simplify each expression.

1. $3v - 3 - v^2 + 6 + a + 2v^2$

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

2. $a + 2az - z + 1 - az - 5z^2$

7. $-c^2 - c - 3 - 5 + 2c^2 - 1$

3. $c - c^2 - c + c + bc - b$

8. $1 + 4 + y + c + c + 1$

4. $a^2 - 3a^2 + 1 + 1 + 6 + 3a^2$

9. $ax + 1 - x + 6ax + ax - x$

5. $-c^2 + c^2 + 3a + ac - ac + 1$

10. $2 + 1 - 1 - 4 - a + a^2$

Simplifying Expressions (G) Answers

Simplify each expression.

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

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

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

$$\begin{aligned} 7. \quad & -c^2 - c - 3 - 5 + 2c^2 - 1 \\ & = c^2 - c - 9 \end{aligned}$$

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

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

$$\begin{aligned} 4. \quad & a^2 - 3a^2 + 1 + 1 + 6 + 3a^2 \\ & = a^2 + 8 \end{aligned}$$

$$\begin{aligned} 9. \quad & ax + 1 - x + 6ax + ax - x \\ & = 8ax - 2x + 1 \end{aligned}$$

$$\begin{aligned} 5. \quad & -c^2 + c^2 + 3a + ac - ac + 1 \\ & = 3a + 1 \end{aligned}$$

$$\begin{aligned} 10. \quad & 2 + 1 - 1 - 4 - a + a^2 \\ & = a^2 - a - 2 \end{aligned}$$

Simplifying Expressions (H)

Simplify each expression.

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

6. $5 + z - 6z + v + 4z - z^2$

2. $1 - uy + 1 + 2y + 1 - 5$

7. $3ax + x - x - 5a + 5x + 2ax$

3. $5u + ux - ux + x - u + 4x$

8. $-y + 3b + 5y + by + b^2 + y$

4. $2 + 3x + x - 1 + ax - 1$

9. $y^2 - y - x - 1 + y^2 + y$

5. $-bu + 2 + 4b - 1 - 1 - 2$

10. $4x - cx - 5c + x + 6x + x^2$

Simplifying Expressions (H) Answers

Simplify each expression.

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

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

$$\begin{aligned} 2. & 1 - uy + 1 + 2y + 1 - 5 \\ & = -uy + 2y - 2 \end{aligned}$$

$$\begin{aligned} 7. & 3ax + x - x - 5a + 5x + 2ax \\ & = 5ax + 5x - 5a \end{aligned}$$

$$\begin{aligned} 3. & 5u + ux - ux + x - u + 4x \\ & = 4u + 5x \end{aligned}$$

$$\begin{aligned} 8. & -y + 3b + 5y + by + b^2 + y \\ & = by + b^2 + 5y + 3b \end{aligned}$$

$$\begin{aligned} 4. & 2 + 3x + x - 1 + ax - 1 \\ & = ax + 4x \end{aligned}$$

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

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

$$\begin{aligned} 10. & 4x - cx - 5c + x + 6x + x^2 \\ & = -cx + x^2 + 11x - 5c \end{aligned}$$

Simplifying Expressions (I)

Simplify each expression.

1. $u^2 - au - u + u + u + 5$

6. $b - y + b^2 + 5y^2 + y + 4b$

2. $-3x^2 - cx + cx + 3 + c + x^2$

7. $2 + 5 + a + 2 - 2 + 6$

3. $6vx + 6 - 1 + 6x + v + 2v$

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

4. $1 - 1 - a^2 - 6a + 3c^2 + ac$

9. $-v - 4x - 4 - 3 - 2 + 1$

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

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

Simplifying Expressions (I) Answers

Simplify each expression.

$$\begin{aligned} 1. \quad & u^2 - au - u + u + u + 5 \\ & = u^2 - au + u + 5 \end{aligned}$$

$$\begin{aligned} 6. \quad & b - y + b^2 + 5y^2 + y + 4b \\ & = b^2 + 5y^2 + 5b \end{aligned}$$

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

$$\begin{aligned} 7. \quad & 2 + 5 + a + 2 - 2 + 6 \\ & = a + 13 \end{aligned}$$

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

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

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

$$\begin{aligned} 9. \quad & -v - 4x - 4 - 3 - 2 + 1 \\ & = -v - 4x - 8 \end{aligned}$$

$$\begin{aligned} 5. \quad & -b^2 + 2b^2 + 6b + 6b + 2b^2 + b \\ & = 3b^2 + 13b \end{aligned}$$

$$\begin{aligned} 10. \quad & c^2 - 1 - 2 + 3 + 4u - u \\ & = c^2 + 3u \end{aligned}$$

Simplifying Expressions (J)

Simplify each expression.

1. $a^2 + ac + c + a + c + 1$

6. $y + y^2 + xy + x - 6 + 6y$

2. $x + u + u + 1 - ux - u$

7. $-y^2 + 6 + a - y^2 + y + ay$

3. $5u^2 + 2b^2 + u + u + bu - 5b$

8. $y^2 + y^2 + 4y + 3 + 4u + 1$

4. $a - 5au - 1 - 1 - a - 2au$

9. $3b - bv + v^2 - v + 5b^2 + 5b^2$

5. $1 + c^2 - 6cy + 1 + 6 - 4c$

10. $2a + 4a - a^2 + a^2 + 4 - 1$

Simplifying Expressions (J) Answers

Simplify each expression.

$$\begin{aligned} 1. & a^2 + ac + c + a + c + 1 \\ & = a^2 + ac + 2c + a + 1 \end{aligned}$$

$$\begin{aligned} 6. & y + y^2 + xy + x - 6 + 6y \\ & = y^2 + xy + 7y + x - 6 \end{aligned}$$

$$\begin{aligned} 2. & x + u + u + 1 - ux - u \\ & = -ux + x + u + 1 \end{aligned}$$

$$\begin{aligned} 7. & -y^2 + 6 + a - y^2 + y + ay \\ & = -2y^2 + ay + a + y + 6 \end{aligned}$$

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

$$\begin{aligned} 8. & y^2 + y^2 + 4y + 3 + 4u + 1 \\ & = 2y^2 + 4y + 4u + 4 \end{aligned}$$

$$\begin{aligned} 4. & a - 5au - 1 - 1 - a - 2au \\ & = -7au - 2 \end{aligned}$$

$$\begin{aligned} 9. & 3b - bv + v^2 - v + 5b^2 + 5b^2 \\ & = -bv + v^2 + 10b^2 + 3b - v \end{aligned}$$

$$\begin{aligned} 5. & 1 + c^2 - 6cy + 1 + 6 - 4c \\ & = c^2 - 6cy - 4c + 8 \end{aligned}$$

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