

# Simplifying Quadratic Expressions (A)

Simplify each expression by combining like terms.

$$1. \ 3g^2 - 4g^2 + 4g + 8g - 5g^2 + g^2 + 5g^2 + 8g + 1$$

$$2. \ -3d + 3d^2 + 6d^2 + 6d - 6d^2 + 8d + 9d^2 - 3d^2 - 4d^2$$

$$3. \ -6t + 9 + 8t - t^2 + 4 - t^2 - 6 - 3 - 7t$$

$$4. \ -2t - 2 - 3t^2 - 5t^2 + 5 + 8t^2 - 4t^2 - 2t^2 + 5t$$

$$5. \ -4j - 2 + 3j^2 + 4j - 7j + j^2 - 2 + 7j^2 - 7j^2$$

$$6. \ 3 + 2 + 2c - 2c + 6c^2 + 5 - 8c^2 + 1 - 3c^2$$

$$7. \ 3 + 2q^2 + 5 + 1 + 5q - 7q - 7 + 9q^2 + 9q^2$$

$$8. \ -4v - 7v^2 - 2v^2 - 2 - 3v + 9v - 2v^2 + 9 + 6v^2$$

$$9. \ -6 + 4 + 2 + x^2 + 2x^2 - x^2 - 5x^2 - 3 - 3x$$

$$10. \ -6 + 3f + 3 + 4f - 6f - 3f^2 - 2f + 5f^2 - f^2$$

# Simplifying Quadratic Expressions (A) Answers

Simplify each expression by combining like terms.

$$\begin{aligned} 1. \quad & 3g^2 - 4g^2 + 4g + 8g - 5g^2 + g^2 + 5g^2 + 8g + 1 \\ & = 20g + 1 \end{aligned}$$

$$\begin{aligned} 2. \quad & -3d + 3d^2 + 6d^2 + 6d - 6d^2 + 8d + 9d^2 - 3d^2 - 4d^2 \\ & = 5d^2 + 11d \end{aligned}$$

$$\begin{aligned} 3. \quad & -6t + 9 + 8t - t^2 + 4 - t^2 - 6 - 3 - 7t \\ & = -2t^2 - 5t + 4 \end{aligned}$$

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

$$\begin{aligned} 5. \quad & -4j - 2 + 3j^2 + 4j - 7j + j^2 - 2 + 7j^2 - 7j^2 \\ & = 4j^2 - 7j - 4 \end{aligned}$$

$$\begin{aligned} 6. \quad & 3 + 2 + 2c - 2c + 6c^2 + 5 - 8c^2 + 1 - 3c^2 \\ & = -5c^2 + 11 \end{aligned}$$

$$\begin{aligned} 7. \quad & 3 + 2q^2 + 5 + 1 + 5q - 7q - 7 + 9q^2 + 9q^2 \\ & = 20q^2 - 2q + 2 \end{aligned}$$

$$\begin{aligned} 8. \quad & -4v - 7v^2 - 2v^2 - 2 - 3v + 9v - 2v^2 + 9 + 6v^2 \\ & = -5v^2 + 2v + 7 \end{aligned}$$

$$\begin{aligned} 9. \quad & -6 + 4 + 2 + x^2 + 2x^2 - x^2 - 5x^2 - 3 - 3x \\ & = -3x^2 - 3x - 3 \end{aligned}$$

$$\begin{aligned} 10. \quad & -6 + 3f + 3 + 4f - 6f - 3f^2 - 2f + 5f^2 - f^2 \\ & = f^2 - f - 3 \end{aligned}$$

# Simplifying Quadratic Expressions (B)

Simplify each expression by combining like terms.

$$1. -3b^2 + 5b^2 - 8b - 7b + 3b + 3b^2 + 9 + 8 - 2b^2$$

$$2. -6n - 2n^2 + 6 + 7n + 4n^2 + 7 + 8n^2 + 7n + 4n$$

$$3. 3m + m^2 + 2m + 2m + m^2 + 8 + 9 + 9m^2 - 4m$$

$$4. -4v + 5v - 3v^2 - 1 + 7v^2 - 3v^2 + 3v^2 - 2v^2 + 7$$

$$5. 6 - 7 - 9 + 4n^2 + 9n - 5n^2 - 5n^2 + 6 + 3n$$

$$6. -9r - 3r + 5 + 9r + 8 - 3r - 6r + 3r^2 + 4r^2$$

$$7. 4 + 3q^2 - 3q^2 + q^2 + q^2 + 9q - 6q^2 - 9q^2 + 3q^2$$

$$8. -2q + 8q^2 + 1 + 4q^2 + 7q + 3q^2 + 4q^2 - 8q - 2$$

$$9. -2h + 4 - 8h^2 - 9 - 7h + 9h - 4 + 2h - 9$$

$$10. d^2 + 8d + 1 + 5d + 6d - 6d^2 - 2d - 6d - 3d$$

# Simplifying Quadratic Expressions (B) Answers

Simplify each expression by combining like terms.

$$\begin{aligned} 1. \quad & -3b^2 + 5b^2 - 8b - 7b + 3b + 3b^2 + 9 + 8 - 2b^2 \\ & = 3b^2 - 12b + 17 \end{aligned}$$

$$\begin{aligned} 2. \quad & -6n - 2n^2 + 6 + 7n + 4n^2 + 7 + 8n^2 + 7n + 4n \\ & = 10n^2 + 12n + 13 \end{aligned}$$

$$\begin{aligned} 3. \quad & 3m + m^2 + 2m + 2m + m^2 + 8 + 9 + 9m^2 - 4m \\ & = 11m^2 + 3m + 17 \end{aligned}$$

$$\begin{aligned} 4. \quad & -4v + 5v - 3v^2 - 1 + 7v^2 - 3v^2 + 3v^2 - 2v^2 + 7 \\ & = 2v^2 + v + 6 \end{aligned}$$

$$\begin{aligned} 5. \quad & 6 - 7 - 9 + 4n^2 + 9n - 5n^2 - 5n^2 + 6 + 3n \\ & = -6n^2 + 12n - 4 \end{aligned}$$

$$\begin{aligned} 6. \quad & -9r - 3r + 5 + 9r + 8 - 3r - 6r + 3r^2 + 4r^2 \\ & = 7r^2 - 12r + 13 \end{aligned}$$

$$\begin{aligned} 7. \quad & 4 + 3q^2 - 3q^2 + q^2 + q^2 + 9q - 6q^2 - 9q^2 + 3q^2 \\ & = -10q^2 + 9q + 4 \end{aligned}$$

$$\begin{aligned} 8. \quad & -2q + 8q^2 + 1 + 4q^2 + 7q + 3q^2 + 4q^2 - 8q - 2 \\ & = 19q^2 - 3q - 1 \end{aligned}$$

$$\begin{aligned} 9. \quad & -2h + 4 - 8h^2 - 9 - 7h + 9h - 4 + 2h - 9 \\ & = -8h^2 + 2h - 18 \end{aligned}$$

$$\begin{aligned} 10. \quad & d^2 + 8d + 1 + 5d + 6d - 6d^2 - 2d - 6d - 3d \\ & = -5d^2 + 8d + 1 \end{aligned}$$

# Simplifying Quadratic Expressions (C)

Simplify each expression by combining like terms.

$$1. -4 + 4 - 5d + 5 + 5 - 8 - 9d^2 - 3d^2 - 3d^2$$

$$2. -4r^2 + r + 4r^2 - 5r + 6 + 7 - 9 + r - 3r$$

$$3. 9z^2 + 7z^2 - 9z - 9 - 9z^2 + 6z^2 - 8 - 6z^2 - 7z$$

$$4. -8d + 4d - 8d^2 - 3 - 2 + d^2 - 4 + 4d^2 + 8d^2$$

$$5. -5x - 3 + 4 - 4x^2 + 6x + 9x^2 + 5x - 8x + 9x^2$$

$$6. -2c^2 - 6 - 2 - 7c + 5 - 7c^2 + 8c^2 - 2 + 6c^2$$

$$7. 8j - 8j^2 + 9j^2 - 8 + 6 + 4j - 5 - 8 + 7j^2$$

$$8. -5p + 3p^2 - 5p + 8 - 5p^2 - 9p^2 + 9p^2 + 4p^2 + 9$$

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

$$10. 8 + 5n^2 + 3n - n^2 - 5n^2 - 5n - 7n^2 + 3n - 7$$

# Simplifying Quadratic Expressions (C) Answers

Simplify each expression by combining like terms.

$$1. -4 + 4 - 5d + 5 + 5 - 8 - 9d^2 - 3d^2 - 3d^2 \\ = -15d^2 - 5d + 2$$

$$2. -4r^2 + r + 4r^2 - 5r + 6 + 7 - 9 + r - 3r \\ = -6r + 4$$

$$3. 9z^2 + 7z^2 - 9z - 9 - 9z^2 + 6z^2 - 8 - 6z^2 - 7z \\ = 7z^2 - 16z - 17$$

$$4. -8d + 4d - 8d^2 - 3 - 2 + d^2 - 4 + 4d^2 + 8d^2 \\ = 5d^2 - 4d - 9$$

$$5. -5x - 3 + 4 - 4x^2 + 6x + 9x^2 + 5x - 8x + 9x^2 \\ = 14x^2 - 2x + 1$$

$$6. -2c^2 - 6 - 2 - 7c + 5 - 7c^2 + 8c^2 - 2 + 6c^2 \\ = 5c^2 - 7c - 5$$

$$7. 8j - 8j^2 + 9j^2 - 8 + 6 + 4j - 5 - 8 + 7j^2 \\ = 8j^2 + 12j - 15$$

$$8. -5p + 3p^2 - 5p + 8 - 5p^2 - 9p^2 + 9p^2 + 4p^2 + 9 \\ = 2p^2 - 10p + 17$$

$$9. 1 + 4 + 4f - 2f - 3f^2 - f^2 + 2f^2 + 7f - 3f^2 \\ = -5f^2 + 9f + 5$$

$$10. 8 + 5n^2 + 3n - n^2 - 5n^2 - 5n - 7n^2 + 3n - 7 \\ = -8n^2 + n + 1$$

# Simplifying Quadratic Expressions (D)

Simplify each expression by combining like terms.

$$1. -5f^2 + f^2 + 6f - 7f^2 - 7 - 9f^2 + 1 - 5f^2 + 8f^2$$

$$2. 2f - 8f^2 - 3f^2 + 3f^2 - 9 - f^2 - 7f^2 - 6 + 6f^2$$

$$3. -5s - 5s - 9s^2 - 4s^2 + 6s^2 + 3s + 5s + 2 - 2s^2$$

$$4. -5a - 5a + 3a^2 + 9a - 8 - 5a + 6 - 4 + 6$$

$$5. 9m^2 - 6m^2 - 4 + 8 - 1 - m - 8m^2 - 6m^2 - 3m$$

$$6. 2f^2 + 9f^2 + 3f^2 + 8 - 9f^2 - f^2 - 5f + 3f + 5f$$

$$7. 6d - d + 4d - 9d^2 - 6 + 5 - 5 - 9 + 7$$

$$8. -4f^2 + 7 + 8f - 5f - 8f^2 - 6f - 6f + 2f^2 - 2f^2$$

$$9. -6g^2 + 4g^2 - 7g^2 + g^2 + 2g - 2g + 1 - 9g^2 + 3g^2$$

$$10. -2 - 3g - 9g - 3g - 6g^2 + 8g + 8g^2 + 8g - 7g^2$$

# Simplifying Quadratic Expressions (D) Answers

Simplify each expression by combining like terms.

$$1. -5f^2 + f^2 + 6f - 7f^2 - 7 - 9f^2 + 1 - 5f^2 + 8f^2 \\ = -17f^2 + 6f - 6$$

$$2. 2f - 8f^2 - 3f^2 + 3f^2 - 9 - f^2 - 7f^2 - 6 + 6f^2 \\ = -10f^2 + 2f - 15$$

$$3. -5s - 5s - 9s^2 - 4s^2 + 6s^2 + 3s + 5s + 2 - 2s^2 \\ = -9s^2 - 2s + 2$$

$$4. -5a - 5a + 3a^2 + 9a - 8 - 5a + 6 - 4 + 6 \\ = 3a^2 - 6a$$

$$5. 9m^2 - 6m^2 - 4 + 8 - 1 - m - 8m^2 - 6m^2 - 3m \\ = -11m^2 - 4m + 3$$

$$6. 2f^2 + 9f^2 + 3f^2 + 8 - 9f^2 - f^2 - 5f + 3f + 5f \\ = 4f^2 + 3f + 8$$

$$7. 6d - d + 4d - 9d^2 - 6 + 5 - 5 - 9 + 7 \\ = -9d^2 + 9d - 8$$

$$8. -4f^2 + 7 + 8f - 5f - 8f^2 - 6f - 6f + 2f^2 - 2f^2 \\ = -12f^2 - 9f + 7$$

$$9. -6g^2 + 4g^2 - 7g^2 + g^2 + 2g - 2g + 1 - 9g^2 + 3g^2 \\ = -14g^2 + 1$$

$$10. -2 - 3g - 9g - 3g - 6g^2 + 8g + 8g^2 + 8g - 7g^2 \\ = -5g^2 + g - 2$$

# Simplifying Quadratic Expressions (E)

Simplify each expression by combining like terms.

$$1. \ 7x + 4 - 9x^2 - 6x^2 - 9x + 9 - 4x - 6 - 2x$$

$$2. \ 7a^2 - 2a - 5a + 9a + 4a^2 + a + 7a - 9 + 7a$$

$$3. \ -8p + 2p + 4 + 6p^2 - 5 - 4p^2 + 5 - 6p^2 - 5p^2$$

$$4. \ -3 - t - 4 + 8t + 7 - 5 - 4t^2 - t^2 - 9t^2$$

$$5. \ 9h - 3 - 2h^2 + 9h + 9h + 4 + 3h^2 + h + 4$$

$$6. \ 6s^2 - s^2 - 2s^2 - 6s^2 - s + 2s + s^2 - 9s^2 + 5s^2$$

$$7. \ -2 - 5r^2 - r - 1 - 2r + 4 + 5 - 2r^2 + 6r^2$$

$$8. \ 8 + v + 7 - 6v - 4v^2 + 4 + 3v^2 + 8v^2 - 2$$

$$9. \ 5s + 4s - 8s + 8 - 3s^2 - 8s^2 + 2s^2 - 7 - 7s$$

$$10. \ a - 5a + 5 - 2 + 3a^2 - 6a^2 + 8a^2 - 2 + 4a^2$$

# Simplifying Quadratic Expressions (E) Answers

Simplify each expression by combining like terms.

$$1. \quad 7x + 4 - 9x^2 - 6x^2 - 9x + 9 - 4x - 6 - 2x \\ = -15x^2 - 8x + 7$$

$$2. \quad 7a^2 - 2a - 5a + 9a + 4a^2 + a + 7a - 9 + 7a \\ = 11a^2 + 17a - 9$$

$$3. \quad -8p + 2p + 4 + 6p^2 - 5 - 4p^2 + 5 - 6p^2 - 5p^2 \\ = -9p^2 - 6p + 4$$

$$4. \quad -3 - t - 4 + 8t + 7 - 5 - 4t^2 - t^2 - 9t^2 \\ = -14t^2 + 7t - 5$$

$$5. \quad 9h - 3 - 2h^2 + 9h + 9h + 4 + 3h^2 + h + 4 \\ = h^2 + 28h + 5$$

$$6. \quad 6s^2 - s^2 - 2s^2 - 6s^2 - s + 2s + s^2 - 9s^2 + 5s^2 \\ = -6s^2 + s$$

$$7. \quad -2 - 5r^2 - r - 1 - 2r + 4 + 5 - 2r^2 + 6r^2 \\ = -r^2 - 3r + 6$$

$$8. \quad 8 + v + 7 - 6v - 4v^2 + 4 + 3v^2 + 8v^2 - 2 \\ = 7v^2 - 5v + 17$$

$$9. \quad 5s + 4s - 8s + 8 - 3s^2 - 8s^2 + 2s^2 - 7 - 7s \\ = -9s^2 - 6s + 1$$

$$10. \quad a - 5a + 5 - 2 + 3a^2 - 6a^2 + 8a^2 - 2 + 4a^2 \\ = 9a^2 - 4a + 1$$

# Simplifying Quadratic Expressions (F)

Simplify each expression by combining like terms.

$$1. \ 9s^2 + s^2 + 8s^2 - 5s + 5s + 6s - 6s^2 - 7s + 3s$$

$$2. \ 3h^2 + 6h^2 + 2 + 4h - 8h + 7h + 6h^2 - 3h - 1$$

$$3. \ -4 - 7j^2 - 9j^2 + 7j + 1 - 2 + 6j + 2 - 2$$

$$4. \ -9p + 3p^2 + 6p^2 + 9p^2 - 5p^2 + 5p - 5p - 8p + p$$

$$5. \ -r^2 - 2 + 4r^2 + 6r^2 - 9 + 9r^2 + 6r + 4r^2 - 6r$$

$$6. \ 5v + 9v^2 + 7v + 8v + 4 + 2 - 3 - 8v + 8$$

$$7. \ -5n - 8 + 2n^2 - 1 + 6n^2 + 2n - n + 7n^2 + 9n^2$$

$$8. \ -9p^2 + p^2 - 9 + 4p - 1 + 8 - 2 + 2p^2 - 2p^2$$

$$9. \ -9v + 6v^2 - 9v^2 - v + v^2 + 5 - 3v^2 + 6 - 3$$

$$10. \ -r + 3 + 2r - 3r^2 + 8 - 9r^2 - 4r^2 + 8r + 4r^2$$

# Simplifying Quadratic Expressions (F) Answers

Simplify each expression by combining like terms.

$$\begin{aligned} 1. \quad & 9s^2 + s^2 + 8s^2 - 5s + 5s + 6s - 6s^2 - 7s + 3s \\ & = 12s^2 + 2s \end{aligned}$$

$$\begin{aligned} 2. \quad & 3h^2 + 6h^2 + 2 + 4h - 8h + 7h + 6h^2 - 3h - 1 \\ & = 15h^2 + 1 \end{aligned}$$

$$\begin{aligned} 3. \quad & -4 - 7j^2 - 9j^2 + 7j + 1 - 2 + 6j + 2 - 2 \\ & = -16j^2 + 13j - 5 \end{aligned}$$

$$\begin{aligned} 4. \quad & -9p + 3p^2 + 6p^2 + 9p^2 - 5p^2 + 5p - 5p - 8p + p \\ & = 13p^2 - 16p \end{aligned}$$

$$\begin{aligned} 5. \quad & -r^2 - 2 + 4r^2 + 6r^2 - 9 + 9r^2 + 6r + 4r^2 - 6r \\ & = 22r^2 - 11 \end{aligned}$$

$$\begin{aligned} 6. \quad & 5v + 9v^2 + 7v + 8v + 4 + 2 - 3 - 8v + 8 \\ & = 9v^2 + 12v + 11 \end{aligned}$$

$$\begin{aligned} 7. \quad & -5n - 8 + 2n^2 - 1 + 6n^2 + 2n - n + 7n^2 + 9n^2 \\ & = 24n^2 - 4n - 9 \end{aligned}$$

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

$$\begin{aligned} 9. \quad & -9v + 6v^2 - 9v^2 - v + v^2 + 5 - 3v^2 + 6 - 3 \\ & = -5v^2 - 10v + 8 \end{aligned}$$

$$\begin{aligned} 10. \quad & -r + 3 + 2r - 3r^2 + 8 - 9r^2 - 4r^2 + 8r + 4r^2 \\ & = -12r^2 + 9r + 11 \end{aligned}$$

# Simplifying Quadratic Expressions (G)

Simplify each expression by combining like terms.

$$1. -9v - 3v + 8 + 3v^2 + 3 + 9v + 9v + 7v^2 - 3v^2$$

$$2. 1 + 3k^2 + 4k + 4k - 8 - 1 - 5k^2 + 5k^2 - 5$$

$$3. -1 + 2z - 9 + 6z^2 + 5z^2 - 4z^2 + 4z - 2z - 4z^2$$

$$4. -7j^2 - 4 + 5j^2 - 8j^2 - j^2 + 8j^2 - 7j - 3j - 7$$

$$5. s^2 + 3 - 5s + 5s - 3s^2 - 9 - 4s - 3 + 9s^2$$

$$6. 7 - 7 - 6n - 7n^2 - 2n^2 + 3 - 3n^2 - 2 + 5n$$

$$7. 6x - 2 + 4x^2 + 4x^2 + 4 - 6x^2 - 4x^2 - 8x^2 + 3x^2$$

$$8. 6h^2 + 8h^2 + 9 - 7h - 8 + 8 + 3h^2 + 5 - 6h^2$$

$$9. 9 + 4x^2 - 5 + 7 + 7 - 3x^2 + 5 + 6x^2 + 2$$

$$10. -9t^2 - 2t^2 + 4t - 8t^2 + 7 + 3 + 6t - 5t + 8t$$

# Simplifying Quadratic Expressions (G) Answers

Simplify each expression by combining like terms.

$$\begin{aligned} 1. \quad & -9v - 3v + 8 + 3v^2 + 3 + 9v + 9v + 7v^2 - 3v^2 \\ & = 7v^2 + 6v + 11 \end{aligned}$$

$$\begin{aligned} 2. \quad & 1 + 3k^2 + 4k + 4k - 8 - 1 - 5k^2 + 5k^2 - 5 \\ & = 3k^2 + 8k - 13 \end{aligned}$$

$$\begin{aligned} 3. \quad & -1 + 2z - 9 + 6z^2 + 5z^2 - 4z^2 + 4z - 2z - 4z^2 \\ & = 3z^2 + 4z - 10 \end{aligned}$$

$$\begin{aligned} 4. \quad & -7j^2 - 4 + 5j^2 - 8j^2 - j^2 + 8j^2 - 7j - 3j - 7 \\ & = -3j^2 - 10j - 11 \end{aligned}$$

$$\begin{aligned} 5. \quad & s^2 + 3 - 5s + 5s - 3s^2 - 9 - 4s - 3 + 9s^2 \\ & = 7s^2 - 4s - 9 \end{aligned}$$

$$\begin{aligned} 6. \quad & 7 - 7 - 6n - 7n^2 - 2n^2 + 3 - 3n^2 - 2 + 5n \\ & = -12n^2 - n + 1 \end{aligned}$$

$$\begin{aligned} 7. \quad & 6x - 2 + 4x^2 + 4x^2 + 4 - 6x^2 - 4x^2 - 8x^2 + 3x^2 \\ & = -7x^2 + 6x + 2 \end{aligned}$$

$$\begin{aligned} 8. \quad & 6h^2 + 8h^2 + 9 - 7h - 8 + 8 + 3h^2 + 5 - 6h^2 \\ & = 11h^2 - 7h + 14 \end{aligned}$$

$$\begin{aligned} 9. \quad & 9 + 4x^2 - 5 + 7 + 7 - 3x^2 + 5 + 6x^2 + 2 \\ & = 7x^2 + 25 \end{aligned}$$

$$\begin{aligned} 10. \quad & -9t^2 - 2t^2 + 4t - 8t^2 + 7 + 3 + 6t - 5t + 8t \\ & = -19t^2 + 13t + 10 \end{aligned}$$

# Simplifying Quadratic Expressions (H)

Simplify each expression by combining like terms.

$$1. -7p - 8p + 2p^2 + 6p^2 - 5p - 7p^2 - 1 + 4p^2 + 8p^2$$

$$2. -8h^2 + 5 - 8h^2 - 8h + 9h^2 + 1 - 4h - 3 + 3h^2$$

$$3. 2x^2 + 2x^2 - 8x^2 + 9x^2 + 5 + 3x^2 + 9x^2 - 1 + 8$$

$$4. -3d^2 + 9d^2 - 4d^2 + 2d^2 + 2 + 7 + 2 + 3d - 4d$$

$$5. -3z^2 + 2 - 5 - 8z^2 + 8 + z^2 + 9 - 7 + 2z^2$$

$$6. 8h + 6h^2 + 9h^2 + 6h^2 - 9h^2 - 8h - 8 - 5 + 4h^2$$

$$7. 7w - 8w - 4 + 7w^2 + 6 - 2w^2 + 5w^2 + 8w - w^2$$

$$8. -5r^2 - 6r - 2r^2 + 7r^2 + 2r^2 + r^2 + 2r^2 + 5r^2 - 4r$$

$$9. 5a^2 - 7a^2 - 7a - 3a^2 - 2 - 2a^2 + 4a^2 + 8 + 9$$

$$10. 6n + 3n^2 + 4n^2 + 9 - 7n^2 - 2 + 8n^2 - 6n^2 - 4n^2$$

# Simplifying Quadratic Expressions (H) Answers

Simplify each expression by combining like terms.

$$\begin{aligned} 1. \quad & -7p - 8p + 2p^2 + 6p^2 - 5p - 7p^2 - 1 + 4p^2 + 8p^2 \\ & = 13p^2 - 20p - 1 \end{aligned}$$

$$\begin{aligned} 2. \quad & -8h^2 + 5 - 8h^2 - 8h + 9h^2 + 1 - 4h - 3 + 3h^2 \\ & = -4h^2 - 12h + 3 \end{aligned}$$

$$\begin{aligned} 3. \quad & 2x^2 + 2x^2 - 8x^2 + 9x^2 + 5 + 3x^2 + 9x^2 - 1 + 8 \\ & = 17x^2 + 12 \end{aligned}$$

$$\begin{aligned} 4. \quad & -3d^2 + 9d^2 - 4d^2 + 2d^2 + 2 + 7 + 2 + 3d - 4d \\ & = 4d^2 - d + 11 \end{aligned}$$

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

$$\begin{aligned} 6. \quad & 8h + 6h^2 + 9h^2 + 6h^2 - 9h^2 - 8h - 8 - 5 + 4h^2 \\ & = 16h^2 - 13 \end{aligned}$$

$$\begin{aligned} 7. \quad & 7w - 8w - 4 + 7w^2 + 6 - 2w^2 + 5w^2 + 8w - w^2 \\ & = 9w^2 + 7w + 2 \end{aligned}$$

$$\begin{aligned} 8. \quad & -5r^2 - 6r - 2r^2 + 7r^2 + 2r^2 + r^2 + 2r^2 + 5r^2 - 4r \\ & = 10r^2 - 10r \end{aligned}$$

$$\begin{aligned} 9. \quad & 5a^2 - 7a^2 - 7a - 3a^2 - 2 - 2a^2 + 4a^2 + 8 + 9 \\ & = -3a^2 - 7a + 15 \end{aligned}$$

$$\begin{aligned} 10. \quad & 6n + 3n^2 + 4n^2 + 9 - 7n^2 - 2 + 8n^2 - 6n^2 - 4n^2 \\ & = -2n^2 + 6n + 7 \end{aligned}$$

# Simplifying Quadratic Expressions (I)

Simplify each expression by combining like terms.

$$1. \ 6z^2 - 3 - 6z^2 + 7 + 9z - 5z^2 - 5z^2 - 2z^2 + 5z^2$$

$$2. \ -8p^2 + 3p^2 - 7 - 5p - 4 - 8p^2 + 9p^2 + 6 + 6p$$

$$3. \ 7s^2 - 3 - 6s + 9s^2 - 9s - 7s + 9s + 1 + 9$$

$$4. \ -2r - 6r^2 - 9r^2 + 5r^2 - 4r + 4r - 3 - 6r^2 - 6$$

$$5. \ 3 + 6g^2 - 9g - 4g^2 - 8 + 4 - g + 2g^2 - 2$$

$$6. \ 2 - 1 - 2h + 6h^2 + 9h - 3h + 4h^2 + 9h + 4h^2$$

$$7. \ -7 - 6y^2 - 5y^2 + 8y - 9y^2 - 2y + 5 + 2y - 5y$$

$$8. \ 7 - 6n - 1 - 7n^2 - 2 - 5n^2 + 6n^2 + 8n + n^2$$

$$9. \ -7 + 4x^2 - 6x - x^2 + 6 + 3x^2 + 5x^2 + 3 + 9x$$

$$10. \ -7x - 3x^2 - 5x^2 - 8x + 2 + 2x + x + 2 + 3x^2$$

# Simplifying Quadratic Expressions (I) Answers

Simplify each expression by combining like terms.

$$\begin{aligned} 1. \quad & 6z^2 - 3 - 6z^2 + 7 + 9z - 5z^2 - 5z^2 - 2z^2 + 5z^2 \\ & = -7z^2 + 9z + 4 \end{aligned}$$

$$\begin{aligned} 2. \quad & -8p^2 + 3p^2 - 7 - 5p - 4 - 8p^2 + 9p^2 + 6 + 6p \\ & = -4p^2 + p - 5 \end{aligned}$$

$$\begin{aligned} 3. \quad & 7s^2 - 3 - 6s + 9s^2 - 9s - 7s + 9s + 1 + 9 \\ & = 16s^2 - 13s + 7 \end{aligned}$$

$$\begin{aligned} 4. \quad & -2r - 6r^2 - 9r^2 + 5r^2 - 4r + 4r - 3 - 6r^2 - 6 \\ & = -16r^2 - 2r - 9 \end{aligned}$$

$$\begin{aligned} 5. \quad & 3 + 6g^2 - 9g - 4g^2 - 8 + 4 - g + 2g^2 - 2 \\ & = 4g^2 - 10g - 3 \end{aligned}$$

$$\begin{aligned} 6. \quad & 2 - 1 - 2h + 6h^2 + 9h - 3h + 4h^2 + 9h + 4h^2 \\ & = 14h^2 + 13h + 1 \end{aligned}$$

$$\begin{aligned} 7. \quad & -7 - 6y^2 - 5y^2 + 8y - 9y^2 - 2y + 5 + 2y - 5y \\ & = -20y^2 + 3y - 2 \end{aligned}$$

$$\begin{aligned} 8. \quad & 7 - 6n - 1 - 7n^2 - 2 - 5n^2 + 6n^2 + 8n + n^2 \\ & = -5n^2 + 2n + 4 \end{aligned}$$

$$\begin{aligned} 9. \quad & -7 + 4x^2 - 6x - x^2 + 6 + 3x^2 + 5x^2 + 3 + 9x \\ & = 11x^2 + 3x + 2 \end{aligned}$$

$$\begin{aligned} 10. \quad & -7x - 3x^2 - 5x^2 - 8x + 2 + 2x + x + 2 + 3x^2 \\ & = -5x^2 - 12x + 4 \end{aligned}$$

# Simplifying Quadratic Expressions (J)

Simplify each expression by combining like terms.

$$1. \ 3j + 2j - 5j + 4j^2 + 8j^2 - 6 - 3j^2 - 6 - 8j$$

$$2. \ -8x + 7x^2 + 5x - x + 2 + 6x + 2x + 3x + 6x$$

$$3. \ 8q - 6q - 6q^2 + 7q + 4q^2 - 7q - 4q^2 - 5q^2 + 2q^2$$

$$4. \ -3r^2 + 2r + 8r^2 + 8r - 4r^2 + 7r^2 + 4 - 3r^2 + 9$$

$$5. \ -3m - 3m^2 + 1 - 3 - 4m + 7m + 3 + 4m^2 - 4m^2$$

$$6. \ -c + 9 + 2 + 9c + 5c^2 + 8c^2 + 4c + 6c + 2c$$

$$7. \ 5z^2 - 9z - 2z^2 + 7z - 8z - 7z^2 + 3z^2 + 6z - 4z$$

$$8. \ -8 + 1 - 9 - 2s^2 + 8s + 7s^2 - 6 + 3s + s^2$$

$$9. \ -9j^2 + 3j^2 - 6 + 9j + 6j + 7j - 2j^2 + 3j - 8j$$

$$10. \ -5 + 3 + q - 9q + 5q - 3q - 5q - 8q - 7q^2$$

# Simplifying Quadratic Expressions (J) Answers

Simplify each expression by combining like terms.

$$\begin{aligned} 1. \quad & 3j + 2j - 5j + 4j^2 + 8j^2 - 6 - 3j^2 - 6 - 8j \\ & = 9j^2 - 8j - 12 \end{aligned}$$

$$\begin{aligned} 2. \quad & -8x + 7x^2 + 5x - x + 2 + 6x + 2x + 3x + 6x \\ & = 7x^2 + 13x + 2 \end{aligned}$$

$$\begin{aligned} 3. \quad & 8q - 6q - 6q^2 + 7q + 4q^2 - 7q - 4q^2 - 5q^2 + 2q^2 \\ & = -9q^2 + 2q \end{aligned}$$

$$\begin{aligned} 4. \quad & -3r^2 + 2r + 8r^2 + 8r - 4r^2 + 7r^2 + 4 - 3r^2 + 9 \\ & = 5r^2 + 10r + 13 \end{aligned}$$

$$\begin{aligned} 5. \quad & -3m - 3m^2 + 1 - 3 - 4m + 7m + 3 + 4m^2 - 4m^2 \\ & = -3m^2 + 1 \end{aligned}$$

$$\begin{aligned} 6. \quad & -c + 9 + 2 + 9c + 5c^2 + 8c^2 + 4c + 6c + 2c \\ & = 13c^2 + 20c + 11 \end{aligned}$$

$$\begin{aligned} 7. \quad & 5z^2 - 9z - 2z^2 + 7z - 8z - 7z^2 + 3z^2 + 6z - 4z \\ & = -z^2 - 8z \end{aligned}$$

$$\begin{aligned} 8. \quad & -8 + 1 - 9 - 2s^2 + 8s + 7s^2 - 6 + 3s + s^2 \\ & = 6s^2 + 11s - 22 \end{aligned}$$

$$\begin{aligned} 9. \quad & -9j^2 + 3j^2 - 6 + 9j + 6j + 7j - 2j^2 + 3j - 8j \\ & = -8j^2 + 17j - 6 \end{aligned}$$

$$\begin{aligned} 10. \quad & -5 + 3 + q - 9q + 5q - 3q - 5q - 8q - 7q^2 \\ & = -7q^2 - 19q - 2 \end{aligned}$$