

Multiplying a Binomial by a Trinomial (A)

Simplify each expression.

1. $(6c^4 - c^3)(9c^3 - 7c^2 - 3c)$

2. $(a^4 + 5a^3)(5a^4 - 4a^3 - 5a^2)$

3. $(7k^2 - 9k)(9k^4 - 2k^3 + 3k^2)$

4. $(2q^2 - q)(2q^2 + 9q - 2)$

5. $(-8g^4 - 6g^3)(-9g^3 + 2g^2 + 7g)$

6. $(-5b^2 - b)(9b^3 - b^2 - 2b)$

7. $(-k + 8)(-2k^2 - 8k - 1)$

8. $(-7s^4 - 6s^3)(8s^2 - 7s + 4)$

9. $(z^4 + 3z^3)(6z^3 - 4z^2 + 4z)$

10. $(2g^3 + g^2)(4g^3 - 7g^2 - 3g)$

Multiplying a Binomial by a Trinomial (A) Answers

Simplify each expression.

$$\begin{aligned} 1. & (6c^4 - c^3)(9c^3 - 7c^2 - 3c) \\ & = 54c^7 - 51c^6 - 11c^5 + 3c^4 \end{aligned}$$

$$\begin{aligned} 2. & (a^4 + 5a^3)(5a^4 - 4a^3 - 5a^2) \\ & = 5a^8 + 21a^7 - 25a^6 - 25a^5 \end{aligned}$$

$$\begin{aligned} 3. & (7k^2 - 9k)(9k^4 - 2k^3 + 3k^2) \\ & = 63k^6 - 95k^5 + 39k^4 - 27k^3 \end{aligned}$$

$$\begin{aligned} 4. & (2q^2 - q)(2q^2 + 9q - 2) \\ & = 4q^4 + 16q^3 - 13q^2 + 2q \end{aligned}$$

$$\begin{aligned} 5. & (-8g^4 - 6g^3)(-9g^3 + 2g^2 + 7g) \\ & = 72g^7 + 38g^6 - 68g^5 - 42g^4 \end{aligned}$$

$$\begin{aligned} 6. & (-5b^2 - b)(9b^3 - b^2 - 2b) \\ & = -45b^5 - 4b^4 + 11b^3 + 2b^2 \end{aligned}$$

$$\begin{aligned} 7. & (-k + 8)(-2k^2 - 8k - 1) \\ & = 2k^3 - 8k^2 - 63k - 8 \end{aligned}$$

$$\begin{aligned} 8. & (-7s^4 - 6s^3)(8s^2 - 7s + 4) \\ & = -56s^6 + s^5 + 14s^4 - 24s^3 \end{aligned}$$

$$\begin{aligned} 9. & (z^4 + 3z^3)(6z^3 - 4z^2 + 4z) \\ & = 6z^7 + 14z^6 - 8z^5 + 12z^4 \end{aligned}$$

$$\begin{aligned} 10. & (2g^3 + g^2)(4g^3 - 7g^2 - 3g) \\ & = 8g^6 - 10g^5 - 13g^4 - 3g^3 \end{aligned}$$

Multiplying a Binomial by a Trinomial (B)

Simplify each expression.

1. $(2n^4 + 4n^3)(7n^4 - 8n^3 + 6n^2)$

2. $(c - 3)(-9c^4 - 7c^3 - 5c^2)$

3. $(-8r^3 + r^2)(-3r^3 + 8r^2 - 3r)$

4. $(2d - 2)(4d^5 + 3d^4 - 2d^3)$

5. $(-7d^2 - 9d)(9d^5 + 4d^4 - 6d^3)$

6. $(3b - 2)(5b^2 - b + 9)$

7. $(3f^4 + 5f^3)(4f^4 + 6f^3 - f^2)$

8. $(4z^3 - 7z^2)(9z^4 - 2z^3 - 6z^2)$

9. $(-5a^4 - 6a^3)(5a^3 - 6a^2 - 3a)$

10. $(2r^5 + 6r^4)(-5r^4 - r^3 + 9r^2)$

Multiplying a Binomial by a Trinomial (B) Answers

Simplify each expression.

$$\begin{aligned} 1. & (2n^4 + 4n^3)(7n^4 - 8n^3 + 6n^2) \\ & = 14n^8 + 12n^7 - 20n^6 + 24n^5 \end{aligned}$$

$$\begin{aligned} 2. & (c - 3)(-9c^4 - 7c^3 - 5c^2) \\ & = -9c^5 + 20c^4 + 16c^3 + 15c^2 \end{aligned}$$

$$\begin{aligned} 3. & (-8r^3 + r^2)(-3r^3 + 8r^2 - 3r) \\ & = 24r^6 - 67r^5 + 32r^4 - 3r^3 \end{aligned}$$

$$\begin{aligned} 4. & (2d - 2)(4d^5 + 3d^4 - 2d^3) \\ & = 8d^6 - 2d^5 - 10d^4 + 4d^3 \end{aligned}$$

$$\begin{aligned} 5. & (-7d^2 - 9d)(9d^5 + 4d^4 - 6d^3) \\ & = -63d^7 - 109d^6 + 6d^5 + 54d^4 \end{aligned}$$

$$\begin{aligned} 6. & (3b - 2)(5b^2 - b + 9) \\ & = 15b^3 - 13b^2 + 29b - 18 \end{aligned}$$

$$\begin{aligned} 7. & (3f^4 + 5f^3)(4f^4 + 6f^3 - f^2) \\ & = 12f^8 + 38f^7 + 27f^6 - 5f^5 \end{aligned}$$

$$\begin{aligned} 8. & (4z^3 - 7z^2)(9z^4 - 2z^3 - 6z^2) \\ & = 36z^7 - 71z^6 - 10z^5 + 42z^4 \end{aligned}$$

$$\begin{aligned} 9. & (-5a^4 - 6a^3)(5a^3 - 6a^2 - 3a) \\ & = -25a^7 + 51a^5 + 18a^4 \end{aligned}$$

$$\begin{aligned} 10. & (2r^5 + 6r^4)(-5r^4 - r^3 + 9r^2) \\ & = -10r^9 - 32r^8 + 12r^7 + 54r^6 \end{aligned}$$

Multiplying a Binomial by a Trinomial (C)

Simplify each expression.

1. $(7f^5 - 5f^4)(9f^5 - 6f^4 - 9f^3)$

2. $(3d + 7)(4d^3 - 9d^2 + 8d)$

3. $(-8a^5 - 4a^4)(-5a^2 - 5a - 9)$

4. $(-2b^5 + 4b^4)(3b^5 - 5b^4 + 8b^3)$

5. $(-6c^5 - 8c^4)(c^3 - 9c^2 + 5c)$

6. $(-3h^2 - 3h)(-3h^5 - 8h^4 + 8h^3)$

7. $(-8s^5 + 5s^4)(-4s^4 + 7s^3 - 5s^2)$

8. $(5c^2 + 6c)(5c^2 - 7c + 1)$

9. $(-8t^5 - 9t^4)(4t^4 - 5t^3 + 4t^2)$

10. $(3g^3 - 7g^2)(-3g^5 + 6g^4 - 8g^3)$

Multiplying a Binomial by a Trinomial (C) Answers

Simplify each expression.

$$\begin{aligned} 1. & (7f^5 - 5f^4)(9f^5 - 6f^4 - 9f^3) \\ & = 63f^{10} - 87f^9 - 33f^8 + 45f^7 \end{aligned}$$

$$\begin{aligned} 2. & (3d + 7)(4d^3 - 9d^2 + 8d) \\ & = 12d^4 + d^3 - 39d^2 + 56d \end{aligned}$$

$$\begin{aligned} 3. & (-8a^5 - 4a^4)(-5a^2 - 5a - 9) \\ & = 40a^7 + 60a^6 + 92a^5 + 36a^4 \end{aligned}$$

$$\begin{aligned} 4. & (-2b^5 + 4b^4)(3b^5 - 5b^4 + 8b^3) \\ & = -6b^{10} + 22b^9 - 36b^8 + 32b^7 \end{aligned}$$

$$\begin{aligned} 5. & (-6c^5 - 8c^4)(c^3 - 9c^2 + 5c) \\ & = -6c^8 + 46c^7 + 42c^6 - 40c^5 \end{aligned}$$

$$\begin{aligned} 6. & (-3h^2 - 3h)(-3h^5 - 8h^4 + 8h^3) \\ & = 9h^7 + 33h^6 - 24h^4 \end{aligned}$$

$$\begin{aligned} 7. & (-8s^5 + 5s^4)(-4s^4 + 7s^3 - 5s^2) \\ & = 32s^9 - 76s^8 + 75s^7 - 25s^6 \end{aligned}$$

$$\begin{aligned} 8. & (5c^2 + 6c)(5c^2 - 7c + 1) \\ & = 25c^4 - 5c^3 - 37c^2 + 6c \end{aligned}$$

$$\begin{aligned} 9. & (-8t^5 - 9t^4)(4t^4 - 5t^3 + 4t^2) \\ & = -32t^9 + 4t^8 + 13t^7 - 36t^6 \end{aligned}$$

$$\begin{aligned} 10. & (3g^3 - 7g^2)(-3g^5 + 6g^4 - 8g^3) \\ & = -9g^8 + 39g^7 - 66g^6 + 56g^5 \end{aligned}$$

Multiplying a Binomial by a Trinomial (D)

Simplify each expression.

1. $(6n^4 - n^3)(-2n^5 - 8n^4 - n^3)$

2. $(-x^2 + 4x)(-2x^3 - x^2 + 6x)$

3. $(3m^3 + 6m^2)(8m^4 + 9m^3 + 3m^2)$

4. $(-5d^4 - 6d^3)(-9d^2 + 2d + 6)$

5. $(5s^3 + 3s^2)(-s^3 - 9s^2 + 9s)$

6. $(-y^3 - 3y^2)(-8y^5 - y^4 + 7y^3)$

7. $(3a^2 - 9a)(7a^4 - 3a^3 + 7a^2)$

8. $(r + 6)(5r^2 - 5r - 9)$

9. $(-6m + 4)(7m^2 - 3m + 3)$

10. $(4h^3 - 3h^2)(-2h^2 - 6h - 5)$

Multiplying a Binomial by a Trinomial (D) Answers

Simplify each expression.

$$\begin{aligned} 1. & (6n^4 - n^3)(-2n^5 - 8n^4 - n^3) \\ & = -12n^9 - 46n^8 + 2n^7 + n^6 \end{aligned}$$

$$\begin{aligned} 2. & (-x^2 + 4x)(-2x^3 - x^2 + 6x) \\ & = 2x^5 - 7x^4 - 10x^3 + 24x^2 \end{aligned}$$

$$\begin{aligned} 3. & (3m^3 + 6m^2)(8m^4 + 9m^3 + 3m^2) \\ & = 24m^7 + 75m^6 + 63m^5 + 18m^4 \end{aligned}$$

$$\begin{aligned} 4. & (-5d^4 - 6d^3)(-9d^2 + 2d + 6) \\ & = 45d^6 + 44d^5 - 42d^4 - 36d^3 \end{aligned}$$

$$\begin{aligned} 5. & (5s^3 + 3s^2)(-s^3 - 9s^2 + 9s) \\ & = -5s^6 - 48s^5 + 18s^4 + 27s^3 \end{aligned}$$

$$\begin{aligned} 6. & (-y^3 - 3y^2)(-8y^5 - y^4 + 7y^3) \\ & = 8y^8 + 25y^7 - 4y^6 - 21y^5 \end{aligned}$$

$$\begin{aligned} 7. & (3a^2 - 9a)(7a^4 - 3a^3 + 7a^2) \\ & = 21a^6 - 72a^5 + 48a^4 - 63a^3 \end{aligned}$$

$$\begin{aligned} 8. & (r + 6)(5r^2 - 5r - 9) \\ & = 5r^3 + 25r^2 - 39r - 54 \end{aligned}$$

$$\begin{aligned} 9. & (-6m + 4)(7m^2 - 3m + 3) \\ & = -42m^3 + 46m^2 - 30m + 12 \end{aligned}$$

$$\begin{aligned} 10. & (4h^3 - 3h^2)(-2h^2 - 6h - 5) \\ & = -8h^5 - 18h^4 - 2h^3 + 15h^2 \end{aligned}$$

Multiplying a Binomial by a Trinomial (E)

Simplify each expression.

1. $(6a + 1)(6a^4 + 5a^3 + 9a^2)$

2. $(-7y^3 - 7y^2)(7y^2 + 6y + 1)$

3. $(n^2 - 3n)(-9n^4 - 3n^3 + 8n^2)$

4. $(7p^3 + 4p^2)(-4p^4 + 9p^3 - 6p^2)$

5. $(-7h^3 + h^2)(5h^5 - 3h^4 - 2h^3)$

6. $(-8c - 1)(-3c^4 + 9c^3 + 7c^2)$

7. $(v^4 - v^3)(6v^2 + 3v + 6)$

8. $(3q^3 - q^2)(-8q^5 - 6q^4 - 6q^3)$

9. $(-3p - 1)(-8p^5 - 3p^4 + 3p^3)$

10. $(-6y^3 + 7y^2)(6y^4 - 7y^3 - 4y^2)$

Multiplying a Binomial by a Trinomial (E) Answers

Simplify each expression.

$$\begin{aligned} 1. & (6a + 1)(6a^4 + 5a^3 + 9a^2) \\ & = 36a^5 + 36a^4 + 59a^3 + 9a^2 \end{aligned}$$

$$\begin{aligned} 2. & (-7y^3 - 7y^2)(7y^2 + 6y + 1) \\ & = -49y^5 - 91y^4 - 49y^3 - 7y^2 \end{aligned}$$

$$\begin{aligned} 3. & (n^2 - 3n)(-9n^4 - 3n^3 + 8n^2) \\ & = -9n^6 + 24n^5 + 17n^4 - 24n^3 \end{aligned}$$

$$\begin{aligned} 4. & (7p^3 + 4p^2)(-4p^4 + 9p^3 - 6p^2) \\ & = -28p^7 + 47p^6 - 6p^5 - 24p^4 \end{aligned}$$

$$\begin{aligned} 5. & (-7h^3 + h^2)(5h^5 - 3h^4 - 2h^3) \\ & = -35h^8 + 26h^7 + 11h^6 - 2h^5 \end{aligned}$$

$$\begin{aligned} 6. & (-8c - 1)(-3c^4 + 9c^3 + 7c^2) \\ & = 24c^5 - 69c^4 - 65c^3 - 7c^2 \end{aligned}$$

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

$$\begin{aligned} 8. & (3q^3 - q^2)(-8q^5 - 6q^4 - 6q^3) \\ & = -24q^8 - 10q^7 - 12q^6 + 6q^5 \end{aligned}$$

$$\begin{aligned} 9. & (-3p - 1)(-8p^5 - 3p^4 + 3p^3) \\ & = 24p^6 + 17p^5 - 6p^4 - 3p^3 \end{aligned}$$

$$\begin{aligned} 10. & (-6y^3 + 7y^2)(6y^4 - 7y^3 - 4y^2) \\ & = -36y^7 + 84y^6 - 25y^5 - 28y^4 \end{aligned}$$

Multiplying a Binomial by a Trinomial (F)

Simplify each expression.

1. $(6h^5 + 9h^4)(-6h^2 - h + 2)$

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

3. $(9h^4 + 3h^3)(2h^4 - 4h^3 + 4h^2)$

4. $(7t^3 - 2t^2)(-3t^3 - 8t^2 - 7t)$

5. $(-6t^5 - 4t^4)(t^2 + 6t - 3)$

6. $(2g^2 - 6g)(-5g^4 + 6g^3 - 4g^2)$

7. $(5k^5 - 4k^4)(-3k^5 + 2k^4 + 7k^3)$

8. $(-2z^5 - 5z^4)(-7z^2 + 7z - 9)$

9. $(z^3 - 6z^2)(-6z^2 - 6z - 5)$

10. $(-3v^5 + 3v^4)(-2v^4 + 5v^3 + 3v^2)$

Multiplying a Binomial by a Trinomial (F) Answers

Simplify each expression.

$$\begin{aligned} 1. & (6h^5 + 9h^4)(-6h^2 - h + 2) \\ & = -36h^7 - 60h^6 + 3h^5 + 18h^4 \end{aligned}$$

$$\begin{aligned} 2. & (5d - 4)(-3d^3 + 8d^2 - 9d) \\ & = -15d^4 + 52d^3 - 77d^2 + 36d \end{aligned}$$

$$\begin{aligned} 3. & (9h^4 + 3h^3)(2h^4 - 4h^3 + 4h^2) \\ & = 18h^8 - 30h^7 + 24h^6 + 12h^5 \end{aligned}$$

$$\begin{aligned} 4. & (7t^3 - 2t^2)(-3t^3 - 8t^2 - 7t) \\ & = -21t^6 - 50t^5 - 33t^4 + 14t^3 \end{aligned}$$

$$\begin{aligned} 5. & (-6t^5 - 4t^4)(t^2 + 6t - 3) \\ & = -6t^7 - 40t^6 - 6t^5 + 12t^4 \end{aligned}$$

$$\begin{aligned} 6. & (2g^2 - 6g)(-5g^4 + 6g^3 - 4g^2) \\ & = -10g^6 + 42g^5 - 44g^4 + 24g^3 \end{aligned}$$

$$\begin{aligned} 7. & (5k^5 - 4k^4)(-3k^5 + 2k^4 + 7k^3) \\ & = -15k^{10} + 22k^9 + 27k^8 - 28k^7 \end{aligned}$$

$$\begin{aligned} 8. & (-2z^5 - 5z^4)(-7z^2 + 7z - 9) \\ & = 14z^7 + 21z^6 - 17z^5 + 45z^4 \end{aligned}$$

$$\begin{aligned} 9. & (z^3 - 6z^2)(-6z^2 - 6z - 5) \\ & = -6z^5 + 30z^4 + 31z^3 + 30z^2 \end{aligned}$$

$$\begin{aligned} 10. & (-3v^5 + 3v^4)(-2v^4 + 5v^3 + 3v^2) \\ & = 6v^9 - 21v^8 + 6v^7 + 9v^6 \end{aligned}$$

Multiplying a Binomial by a Trinomial (G)

Simplify each expression.

1. $(7k^4 + 2k^3)(-4k^2 + 2k + 5)$

2. $(8a^4 + 4a^3)(-9a^3 - 2a^2 - 9a)$

3. $(-5a^2 + a)(-9a^2 + a - 7)$

4. $(-5w - 1)(w^4 + 7w^3 + 8w^2)$

5. $(-6v^3 - 2v^2)(2v^3 - 2v^2 - 4v)$

6. $(9p^4 + 7p^3)(-2p^3 - 5p^2 - p)$

7. $(7g^2 + 7g)(-4g^3 - 6g^2 - 4g)$

8. $(-8h^2 - 4h)(-6h^2 + 6h + 7)$

9. $(9d + 9)(d^4 - 2d^3 + 2d^2)$

10. $(-6z - 5)(9z^4 + 5z^3 - 9z^2)$

Multiplying a Binomial by a Trinomial (G) Answers

Simplify each expression.

$$\begin{aligned} 1. & (7k^4 + 2k^3)(-4k^2 + 2k + 5) \\ & = -28k^6 + 6k^5 + 39k^4 + 10k^3 \end{aligned}$$

$$\begin{aligned} 2. & (8a^4 + 4a^3)(-9a^3 - 2a^2 - 9a) \\ & = -72a^7 - 52a^6 - 80a^5 - 36a^4 \end{aligned}$$

$$\begin{aligned} 3. & (-5a^2 + a)(-9a^2 + a - 7) \\ & = 45a^4 - 14a^3 + 36a^2 - 7a \end{aligned}$$

$$\begin{aligned} 4. & (-5w - 1)(w^4 + 7w^3 + 8w^2) \\ & = -5w^5 - 36w^4 - 47w^3 - 8w^2 \end{aligned}$$

$$\begin{aligned} 5. & (-6v^3 - 2v^2)(2v^3 - 2v^2 - 4v) \\ & = -12v^6 + 8v^5 + 28v^4 + 8v^3 \end{aligned}$$

$$\begin{aligned} 6. & (9p^4 + 7p^3)(-2p^3 - 5p^2 - p) \\ & = -18p^7 - 59p^6 - 44p^5 - 7p^4 \end{aligned}$$

$$\begin{aligned} 7. & (7g^2 + 7g)(-4g^3 - 6g^2 - 4g) \\ & = -28g^5 - 70g^4 - 70g^3 - 28g^2 \end{aligned}$$

$$\begin{aligned} 8. & (-8h^2 - 4h)(-6h^2 + 6h + 7) \\ & = 48h^4 - 24h^3 - 80h^2 - 28h \end{aligned}$$

$$\begin{aligned} 9. & (9d + 9)(d^4 - 2d^3 + 2d^2) \\ & = 9d^5 - 9d^4 + 18d^2 \end{aligned}$$

$$\begin{aligned} 10. & (-6z - 5)(9z^4 + 5z^3 - 9z^2) \\ & = -54z^5 - 75z^4 + 29z^3 + 45z^2 \end{aligned}$$

Multiplying a Binomial by a Trinomial (H)

Simplify each expression.

1. $(-2x^2 - 2x)(8x^2 + 4x + 7)$

2. $(6k^4 + 9k^3)(3k^2 - 3k + 3)$

3. $(2q^3 + 6q^2)(3q^3 - 2q^2 + 8q)$

4. $(3f + 7)(-9f^5 - 9f^4 - 5f^3)$

5. $(8t^3 - t^2)(8t^5 - 9t^4 - 3t^3)$

6. $(v - 7)(5v^5 - 8v^4 - 6v^3)$

7. $(3k + 1)(-7k^3 + 9k^2 + 5k)$

8. $(6x^4 - 4x^3)(-7x^3 + 9x^2 - x)$

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

10. $(4n^3 - 3n^2)(-4n^5 + 2n^4 + 2n^3)$

Multiplying a Binomial by a Trinomial (H) Answers

Simplify each expression.

- $(-2x^2 - 2x)(8x^2 + 4x + 7)$
 $= -16x^4 - 24x^3 - 22x^2 - 14x$
- $(6k^4 + 9k^3)(3k^2 - 3k + 3)$
 $= 18k^6 + 9k^5 - 9k^4 + 27k^3$
- $(2q^3 + 6q^2)(3q^3 - 2q^2 + 8q)$
 $= 6q^6 + 14q^5 + 4q^4 + 48q^3$
- $(3f + 7)(-9f^5 - 9f^4 - 5f^3)$
 $= -27f^6 - 90f^5 - 78f^4 - 35f^3$
- $(8t^3 - t^2)(8t^5 - 9t^4 - 3t^3)$
 $= 64t^8 - 80t^7 - 15t^6 + 3t^5$
- $(v - 7)(5v^5 - 8v^4 - 6v^3)$
 $= 5v^6 - 43v^5 + 50v^4 + 42v^3$
- $(3k + 1)(-7k^3 + 9k^2 + 5k)$
 $= -21k^4 + 20k^3 + 24k^2 + 5k$
- $(6x^4 - 4x^3)(-7x^3 + 9x^2 - x)$
 $= -42x^7 + 82x^6 - 42x^5 + 4x^4$
- $(-r^2 + 4r)(-3r^5 - 6r^4 + r^3)$
 $= 3r^7 - 6r^6 - 25r^5 + 4r^4$
- $(4n^3 - 3n^2)(-4n^5 + 2n^4 + 2n^3)$
 $= -16n^8 + 20n^7 + 2n^6 - 6n^5$

Multiplying a Binomial by a Trinomial (I)

Simplify each expression.

1. $(-7b^2 + 8b)(-b^4 - 4b^3 - b^2)$

2. $(-5t^2 + 3t)(-9t^3 + 6t^2 + 6t)$

3. $(-8m + 7)(-2m^2 + 8m + 1)$

4. $(-9y + 7)(-2y^3 - 5y^2 - 2y)$

5. $(-5r^3 + 5r^2)(5r^3 + 3r^2 + 5r)$

6. $(5t^2 + 3t)(-t^3 + t^2 + 9t)$

7. $(3x + 7)(-4x^5 + 9x^4 - 9x^3)$

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

9. $(2m - 4)(-9m^3 - 2m^2 + 2m)$

10. $(9t^4 - 6t^3)(5t^4 - 9t^3 + 4t^2)$

Multiplying a Binomial by a Trinomial (I) Answers

Simplify each expression.

$$\begin{aligned} 1. & (-7b^2 + 8b)(-b^4 - 4b^3 - b^2) \\ & = 7b^6 + 20b^5 - 25b^4 - 8b^3 \end{aligned}$$

$$\begin{aligned} 2. & (-5t^2 + 3t)(-9t^3 + 6t^2 + 6t) \\ & = 45t^5 - 57t^4 - 12t^3 + 18t^2 \end{aligned}$$

$$\begin{aligned} 3. & (-8m + 7)(-2m^2 + 8m + 1) \\ & = 16m^3 - 78m^2 + 48m + 7 \end{aligned}$$

$$\begin{aligned} 4. & (-9y + 7)(-2y^3 - 5y^2 - 2y) \\ & = 18y^4 + 31y^3 - 17y^2 - 14y \end{aligned}$$

$$\begin{aligned} 5. & (-5r^3 + 5r^2)(5r^3 + 3r^2 + 5r) \\ & = -25r^6 + 10r^5 - 10r^4 + 25r^3 \end{aligned}$$

$$\begin{aligned} 6. & (5t^2 + 3t)(-t^3 + t^2 + 9t) \\ & = -5t^5 + 2t^4 + 48t^3 + 27t^2 \end{aligned}$$

$$\begin{aligned} 7. & (3x + 7)(-4x^5 + 9x^4 - 9x^3) \\ & = -12x^6 - x^5 + 36x^4 - 63x^3 \end{aligned}$$

$$\begin{aligned} 8. & (-6z^2 + 9z)(-7z^5 - 2z^4 - 5z^3) \\ & = 42z^7 - 51z^6 + 12z^5 - 45z^4 \end{aligned}$$

$$\begin{aligned} 9. & (2m - 4)(-9m^3 - 2m^2 + 2m) \\ & = -18m^4 + 32m^3 + 12m^2 - 8m \end{aligned}$$

$$\begin{aligned} 10. & (9t^4 - 6t^3)(5t^4 - 9t^3 + 4t^2) \\ & = 45t^8 - 111t^7 + 90t^6 - 24t^5 \end{aligned}$$

Multiplying a Binomial by a Trinomial (J)

Simplify each expression.

1. $(9q^5 - 6q^4)(8q^4 + q^3 - 6q^2)$

2. $(7c^4 - 8c^3)(3c^2 - 6c - 3)$

3. $(2f^5 + 4f^4)(-f^4 + 3f^3 + 3f^2)$

4. $(-4f^4 + 4f^3)(5f^4 - 4f^3 - 2f^2)$

5. $(6c^3 + 4c^2)(7c^5 + c^4 + 6c^3)$

6. $(-8d^3 + 8d^2)(6d^3 + 9d^2 - 2d)$

7. $(-6q^5 + 5q^4)(5q^2 + 8q + 9)$

8. $(7h^5 + 5h^4)(3h^3 - 2h^2 - 3h)$

9. $(-2g^4 - 2g^3)(8g^2 - 8g + 4)$

10. $(-6h^3 - h^2)(-6h^3 + h^2 + 4h)$

Multiplying a Binomial by a Trinomial (J) Answers

Simplify each expression.

$$\begin{aligned} 1. & (9q^5 - 6q^4)(8q^4 + q^3 - 6q^2) \\ & = 72q^9 - 39q^8 - 60q^7 + 36q^6 \end{aligned}$$

$$\begin{aligned} 2. & (7c^4 - 8c^3)(3c^2 - 6c - 3) \\ & = 21c^6 - 66c^5 + 27c^4 + 24c^3 \end{aligned}$$

$$\begin{aligned} 3. & (2f^5 + 4f^4)(-f^4 + 3f^3 + 3f^2) \\ & = -2f^9 + 2f^8 + 18f^7 + 12f^6 \end{aligned}$$

$$\begin{aligned} 4. & (-4f^4 + 4f^3)(5f^4 - 4f^3 - 2f^2) \\ & = -20f^8 + 36f^7 - 8f^6 - 8f^5 \end{aligned}$$

$$\begin{aligned} 5. & (6c^3 + 4c^2)(7c^5 + c^4 + 6c^3) \\ & = 42c^8 + 34c^7 + 40c^6 + 24c^5 \end{aligned}$$

$$\begin{aligned} 6. & (-8d^3 + 8d^2)(6d^3 + 9d^2 - 2d) \\ & = -48d^6 - 24d^5 + 88d^4 - 16d^3 \end{aligned}$$

$$\begin{aligned} 7. & (-6q^5 + 5q^4)(5q^2 + 8q + 9) \\ & = -30q^7 - 23q^6 - 14q^5 + 45q^4 \end{aligned}$$

$$\begin{aligned} 8. & (7h^5 + 5h^4)(3h^3 - 2h^2 - 3h) \\ & = 21h^8 + h^7 - 31h^6 - 15h^5 \end{aligned}$$

$$\begin{aligned} 9. & (-2g^4 - 2g^3)(8g^2 - 8g + 4) \\ & = -16g^6 + 8g^4 - 8g^3 \end{aligned}$$

$$\begin{aligned} 10. & (-6h^3 - h^2)(-6h^3 + h^2 + 4h) \\ & = 36h^6 - 25h^4 - 4h^3 \end{aligned}$$