

Worksheet A: Factoring Foundations

GCF, basic trinomials, difference of squares, and perfect-square trinomials.

Name: _____

Date: _____

1. $6x + 18$

Factor completely over the integers.

2. $5x^2 - 20x$

Factor completely over the integers.

3. $x^2 + 7x + 12$

Factor completely over the integers.

4. $x^2 - x - 12$

Factor completely over the integers.

5. $x^2 - 25$

Factor completely over the integers.

6. $4x^2 - 49$

Factor completely over the integers.

Worksheet A: Factoring Foundations

Continue. Check every factor before you stop.

Name: _____

Date: _____

7. $x^2 + 10x + 25$

Factor completely over the integers.

8. $x^2 - 12x + 36$

Factor completely over the integers.

9. $3x^2 + 12x + 12$

Factor completely over the integers.

10. $2x^2 + 10x + 12$

Factor completely over the integers.

11. $x^3 - 9x$

Factor completely over the integers.

12. $4y^2 + 20y + 24$

Factor completely over the integers.

Worksheet B: Mixed Factoring Methods

Choose the method. Several problems require more than one pass.

Name: _____

Date: _____

1. $6x^2 + 11x + 3$

Factor completely over the integers.

2. $8x^2 - 2x - 3$

Factor completely over the integers.

3. $12x^2 + 11x - 5$

Factor completely over the integers.

4. $x^3 + 3x^2 - 4x - 12$

Factor completely over the integers.

5. $2x^3 - 6x^2 + 5x - 15$

Factor completely over the integers.

6. $x^3 - 27$

Factor completely over the integers.

7. $8x^3 + 125$

Factor completely over the integers.

Worksheet B: Mixed Factoring Methods

Continue. Factor every result again.

Name: _____

Date: _____

8. $3x^4 - 15x^2$

Factor completely over the integers.

9. $x^4 - 13x^2 + 36$

Factor completely over the integers.

10. $16x^4 - 81$

Factor completely over the integers.

11. $6a^2b - 24b$

Factor completely over the integers.

12. $4x^2 - 12xy + 9y^2$

Factor completely over the integers.

13. $15m^2n + 10mn^2 - 5mn$

Factor completely over the integers.

14. $2x^3 + 7x^2 + 3x$

Factor completely over the integers.

Worksheet C: Factoring Challenge

No method labels. Expect hidden GCFs, repeated patterns, and quadratic form.

Name: _____

Date: _____

1. $12x^3 - 75x$

Factor completely over the integers.

2. $6x^3 + x^2 - 24x - 4$

Factor completely over the integers.

3. $2x^4 - 10x^2 + 8$

Factor completely over the integers.

4. $x^6 - 64$

Factor completely over the integers.

5. $16x^4 - 40x^2y^2 + 25y^4$

Factor completely over the integers.

Worksheet C: Factoring Challenge

Continue. Verify by multiplying your factors back together.

Name: _____

Date: _____

6. $18x^2 - 33x - 30$

Factor completely over the integers.

7. $4x^4 + 4x^2 - 15$

Factor completely over the integers.

8. $x^4 + 2x^3 - 9x^2 - 18x$

Factor completely over the integers.

9. $16a^4 - 81b^4$

Factor completely over the integers.

10. $3x^5 - 21x^3 + 36x$

Factor completely over the integers.
