

Chapter 10 — Factoring

Worksheet C: Mixed Application

Name: _____ Grade: _____ Date: _____

1. A student factors $2x^2 + 7x + 3$ as $(2x + 1)(x + 3)$. Verify by expanding. Is the student correct?

2. A student factors $x^2 - 6x + 8$ as $(x - 2)(x - 4)$. Verify by expanding and explain how the factor pair was chosen.

3. A student writes $x^2 + 25 = (x + 5)(x - 5)$. Identify the error.

4. A rectangle has area $x^2 - 2x - 35$. Find possible binomial dimensions.

5. A rectangular garden has area $2x^2 - 5x - 12$. Find possible binomial dimensions.

6. A square has area $x^2 - 10x + 25$. Write a possible side length.

7. Factor $16x^2 - 81$ and explain why it is a difference of squares.

8. A student says $x^2 + 13x + 42$ has dimensions $x + 6$ and $x + 7$. Verify the claim.

9. Factor completely $4x^2 - 12x$.

10. Solve by factoring: $x^2 - 9x + 18 = 0$.

11. Solve by factoring: $x^2 - 4x - 21 = 0$.

12. Create a trinomial with factors $(x - 9)(x + 5)$. Expand to verify.

13. Create an expression that factors as $3x(x + 4)$. Expand to verify.

14. Non-routine diagnostic: a student factors $6x^2 + 18x$ as $6x(x + 3)$. Is this factorization correct and complete? Explain and verify by expanding.

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15. Non-routine diagnostic: compare $x^2 - 36$ and $x^2 + 36$. Explain why only one factors over the integers using difference of squares.
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