

1. Graph $f_1(x) = (x+2)(x+3)$ and $f_2(x) = x^2 + 5x + 6$. What do you see?

Graphs page, both functions

Answer: one curve - identical

2. What does 'identical graphs' prove?

Same output for every x

Answer: the expressions are equivalent

3. Check with a table (ctrl+T): $f_1 = (x+1)^2$ vs $f_2 = x^2 + 1$. Equivalent?

Compare columns at $x = 1, 2, 3$

Answer: No - tables differ

4. What is the CORRECT expansion of $(x+1)^2$? Verify on the calculator.

$x^2 + 2x + 1$ overlaps

Answer: $x^2 + 2x + 1$

5. Verify your factoring: does $x^2 - 5x + 6 = (x - 2)(x - 3)$?

Graph both, or table

Answer: yes - identical

6. A student claims $(x + 4)(x - 4) = x^2 - 8$. Test at $x = 1$ by hand AND by table.

$(5)(-3) = -15$ vs $1 - 8 = -7$

Answer: claim is false

7. Use zeros: graph $f_1(x) = x^2 - 8x - 20$ and find both zeros. What factors do they reveal? (Trainer echo!)

Analyze Graph > Zero twice: 10, -2

Answer: $(x - 10)(x + 2)$

8. Verify $3x(x - 8) = 3x^2 - 24x$ with a table. Which x -values make both 0?

$x = 0$ and $x = 8$

Answer: equivalent; zeros 0, 8

9. A student expands $(2x + 3)(x - 5)$ as $2x^2 - 7x - 15$. Check by table; if wrong, find and fix the error. ★ challenge

True expansion: $2x^2 - 10x + 3x - 15$

Middle should be $-7x$... check: $-10x + 3x = -7x$

Answer: actually correct - tables match!

10. Two functions look identical on screen but differ past the window. How can a TABLE settle it? Test $f_1 =$

Tables show exact values

$f_2(1000) = 1000001$ vs 1000000

Answer: table at large x reveals the difference