Name: _____ Date: _____

y = (x - h)^2 + k has vertex (h, k). Inside the parentheses shifts LEFT/RIGHT (opposite sign); k shifts UP/DOWN. Last two are challen

1. Vertex of y = (x - 3)^2 + 2?

show your work

2. Vertex of y = (x + 5)^2 - 1?

show your work

3. Shift y = x^2 right 4 units. Write it.

show your work

4. Shift y = x^2 up 3 units.

show your work

5. Shift x^2 left 3 units. (Trainer echo - Aug 2025 Q13!)

show your work

6. Shift f(x) = (x + 5)^2 - 2 left 3 units. (Trainer echo - Jan 2026 Q15!)

show your work

7. Vertex of y = -(x - 2)^2 + 6? Does it open up or down?

show your work

8. Write a parabola with vertex (4, -3) opening up.

show your work

9. ★ CHALLENGE

y = (x - 1)^2 - 9. Find the vertex AND the zeros.

show your work

10. ★ CHALLENGE

Describe how y = (x + 2)^2 - 5 moved from y = x^2, then give its vertex.

show your work