General Form → Vertex Form

For each quadratic function:

1. Identify the y-intercept.
2. Complete the square to rewrite the function in vertex form: $f(x) = a(x-p)^2 + q$.
3. Identify and plot the vertex.
4. Then sketch the parabola.

Section 1: $\boldsymbol{a = 1}$ — Core Skill Building

1. $f(x) = x^2 + 6x + 9$
2. $f(x) = x^2 + 4x + 3$
3. $f(x) = x^2 - 2x - 24$
4. $f(x) = x^2 + 3x - 4$
5. $f(x) = x^2 + 7x + 10$
6. $f(x) = x^2 - 5x - 6$

Section 2: $\boldsymbol{a > 1}$ — Integer Coefficients

7. $f(x) = 2x^2 - 14x + 24$
8. $f(x) = 2x^2 + 6x - 7$
9. $f(x) = 3x^2 + 18x + 24$
10. $f(x) = 4x^2 - 4x - 80$
11. $f(x) = 4x^2 - 8x + 3$
12. $f(x) = 4x^2 - 12x + 5$
13. $f(x) = 3x^2 + 7.5x - 2.5$
14. $f(x) = 5x^2 - 30x - 80$
15. $f(x) = 2x^2 + 3x + 1$

Section 3: $\boldsymbol{a > 1}$ — Mixed Signs / Fractions

16. $f(x) = 2x^2 - 9x - 5$
17. $f(x) = 3x^2 - 4x - 15$
18. $f(x) = 3x^2 - 5x - 4$
19. $f(x) = 0.5x^2 - 3x - 1$
20. $f(x) = 4x^2 + 14x - 30$
21. $f(x) = 5x^2 + 14x - 3$
22. $f(x) = -\frac{1}{2}x^2 + 8x - 16$
23. $f(x) = x^2 + 1.4x - 1.2$
24. $f(x) = \frac{4}{3}x^2 + 2x - 18$
25. $f(x) = 3x^2 - \frac{29}{2}x + 14$