

Key

Convert the following from Vertex form to standard, or standard to vertex (depending on which one is given). Then answer the following a-c.

- a. Direction of opening "a" Positive = min/up
Negative = max/down
b. The coordinates of the vertex (+h, k)
c. The axis of symmetry "h"
↑
be careful

Do your work on another sheet of paper

1) $y = 2(x+1)^2 - 8$

Other Form: $2x^2 + 4x - 6$

a. min/up

b. (-1, -8)

c. -1

2). $y = x^2 - 12x + 46$

Other Form: $y = (x-6)^2 + 10$

a. Up

b. (6, 10)

c. 6

3). $y = x^2 - 6x + 5$

Other Form: $(x-3)^2 - 4$

a. Up

b. (3, -4)

c. 3

4). $y = -13(x)^2 + 12$

Other Form: $-13x^2 + 12$

a. Down

b. (0, 12)

c. 0

5). $y = 2x^2 + 36x + 170$

Other Form: $2(x+9)^2 + 8$

a. Up

b. (-9, 8)

c. -9

6). $9 + y = 12(x-1)^2$

Other Form: $12x^2 - 24x + 3$

a. Up

b. (1, -9)

c. 1

7). $y/3 + 12 = (x+1)^2$
 $\rightarrow y = 3((x+1)^2 - 12)$
 $3(x+1)^2 - 36$

Other Form: $3x^2 + 6x - 33$

a. Up

b. (-1, -36)

c. -1

8). $y = (x+5)(x+4)$
 $\rightarrow x^2 + 9x + 20$

Other Form: $(x + 9/2)^2 - 1/4$

a. Up

b. (-9/2, -1/4)

c. -9/2

9). $y-2 = (5+x)^2$
 $\rightarrow y = (5+x)^2 + 2$

Other Form: $x^2 + 10x + 27$

a. Up

b. (-5, 2)

c. -5

10). $y = x^2 + 10x + 33$

Other Form: $y = (x+5)^2 + 8$

a. Up

b. (-5, 8)

c. -5

COMPLETE THE SQUARE SUDOKU

Instruction: The following is a Sudoku puzzle. As you work through this chapter, try to express the quadratic expressions in complete the square forms. Use the clues to fill in the boxes labeled. Then fill in the remaining part of the grid so that every row, every column, and every 3×3 box contains the digits 1 through 9.

8	9	6	7	3	2	1	4	5
2	5	7	8	1	4	9	6	3
3	4	1	5	9	6	2	8	7
7	2	4	1	8	3	5	9	6
9	1	3	6	5	7	8	2	4
5	6	8	2	4	9	3	7	1
6	3	2	9	7	1	4	5	8
1	8	9	4	6	5	7	3	2
4	7	5	3	2	8	6	1	9

Clues:

1. Express $2x^2 + 16x + 33$ in the form $A(x+B)^2 + C$.
2. Express $-x^2 - 10x - 18$ in the form $D - (x+E)^2$.
3. Express $x^2 - 12x + 27$ in the form $(x-F)^2 - G$.
4. Express $2x^2 - 20x + 54$ in the form $H(x-I)^2 + J$.
5. Express $x^2 + 8x + 9$ in the form $(x+K)^2 - L$.
- 6.. Express $x^2 - 10x + 33$ in the form $(x-M)^2 + N$.
7. Express $2x^2 + 28x + 89$ in the form $P(x+Q)^2 - R$.
8. Express $9x^2 + 12x + 5$ in the form $(Sx+T)^2 + U$.
9. Express $25x^2 - 70x + 57$ in the form $(Vx-W)^2 + Z$.
10. Express $16x^2 - 72x + 87$ in the form $(a-bx)^2 + c$.
11. Express $3x^2 + 48x + 192$ in the form $d(x+e)^2$.
12. Express $25 - 40x + 16x^2$ in the form $(f-gx)^2$.