

Completing the Square and Curve Sketching

1. For each of the following state the:

- i. Turning Point ii. y-intercept iii. axis of symmetry
iv. nature of the turning point.

a. $y = (x + 1)^2 + 2$

b. $y = (x + 1)^2 - 2$

c. $y = (x - 1)^2 - 3$

d. $y = -(x - 3)^2 + 2$

e. $y = -(x + 4)^2 + 9$

f. $y = (x + 4)^2 - 9$

g. $y = (x - 3)^2 - 9$

h. $y = -(x + 2)^2 + 3$

i. $y = -(x - 4)^2 + 7$

2. Sketch each of the above graphs.

3. Write each of the following in the form $y = (x + g)^2 + h$

a. $y = x^2 + 8x + 3$

b. $y = x^2 + 12x + 3$

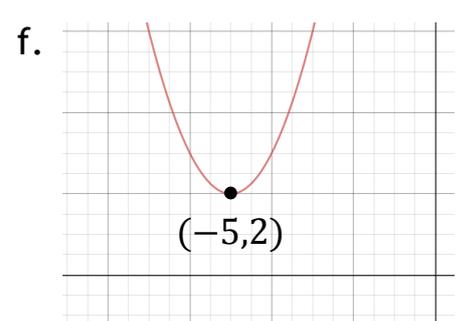
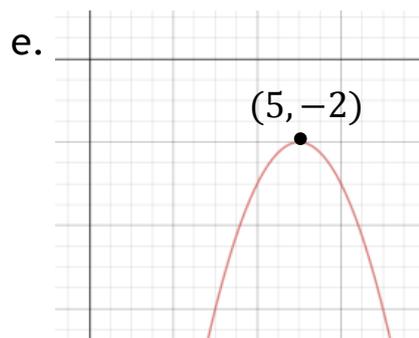
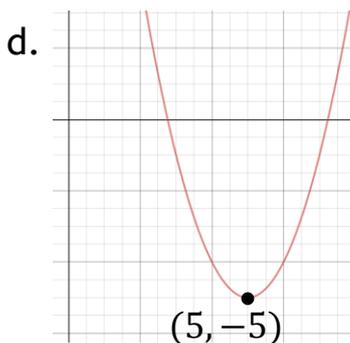
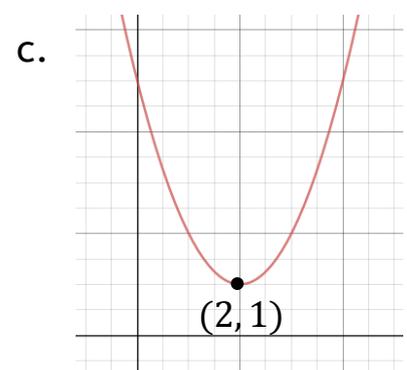
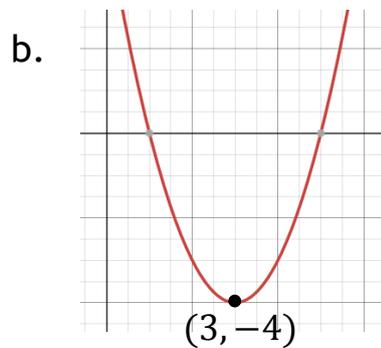
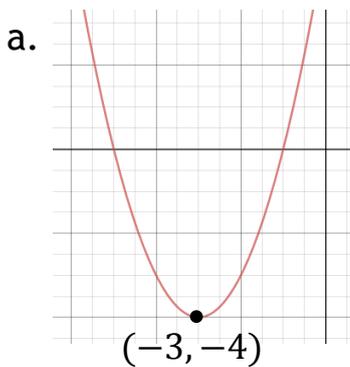
c. $y = x^2 - 12x + 3$

d. $y = x^2 + 7x + 3$

e. $y = x^2 - 7x - 3$

f. $y = x^2 - 9x + 3$

4. State the equation of the graphs below in the form $y = (x + p)^2 + q$



5. State the y-intercept and axis of symmetry for the graphs in question 4.