

# Sample Questions Set 07

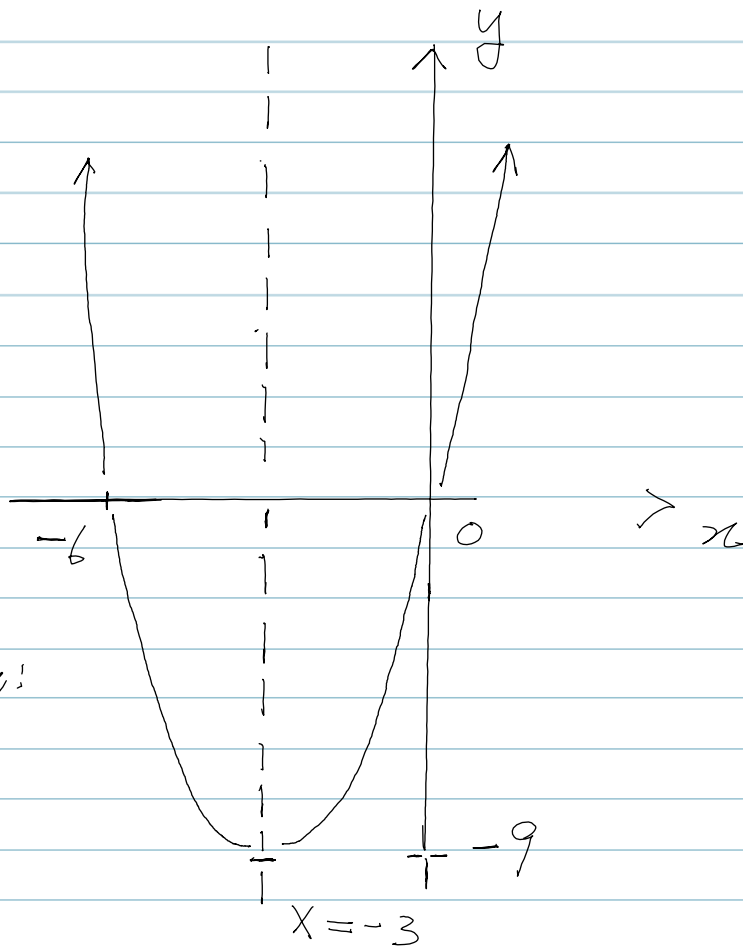
1.  $y = x^2 + 6x = x(x+6)$

$$y = 0 : x = 0, -6$$

Axis of symmetry :

$$x = -3$$

$$y = (-3)^2 + 6(-3) \\ = -9$$



Complete the square check:

$$x^2 + 6x$$

$$= x^2 + 6x + (3)^2 - (3)^2$$

$$= (x+3)^2 - 9$$

↑  
1 > 0  
min.

$$x+3 = 0$$

$$x = -3$$

vertex : (-3, -9)

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

$= -3\left(x^2 - x + \left(-\frac{1}{2}\right)^2 - \left(-\frac{1}{2}\right)^2\right) + 2$

$= -3\left(\left(x - \frac{1}{2}\right)^2 - \frac{1}{4}\right) + 2$

$= -3\left(x - \frac{1}{2}\right)^2 + \frac{3}{4} + 2 = -3\left(x - \frac{1}{2}\right)^2 + \frac{11}{4}$

Axis of symmetry :  $x - \frac{1}{2} = 0 \Rightarrow x = \frac{1}{2}$

Vertex :  $\left(\frac{1}{2}, \frac{11}{4}\right)$

y-intercept :  $y = 0 + 0 + 2 = 2$

