CHAPTER 6 EXAM REVIEW FINAL ANSWERS

1. $y = (x+5)^2 - 12$; vertex $(-5, -12)$

2. $y = 2(x+3)^2 - 8$

3. $y = -3(x-4)^2 + 26$

   A **maximum** of $y = 26$,
   when $x = 4$.
   The axis of symmetry is $x = 4$.
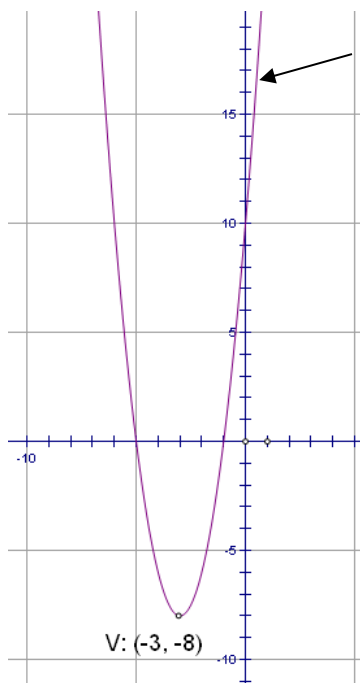
4. a) $x = 2$ or $x = -3$
   b) $p = 0$ or $p = -5$
   c) $x = \frac{2}{5}$ or $x = \frac{-5}{2}$
   d) $x = \frac{2}{5}$ or $x = \frac{-3}{2}$

5. a) $x \doteq -0.36$ or $x \doteq -4.14$
   b) $x = \frac{3}{2}$

Graph for Question 2
$y = 2(x+3)^2 - 8$

V: (-3, -8)

6. Since $b^2 - 4ac < 0$ there are no real roots (i.e. no solution for x)

7. a) Completing the square gives $h = -0.09(d-5)^2 + 4.25$. Hence the maximum height is 4.25 m
   b) 5 metres
   c) Let $h = 3$ and solve for d. When the ball is 3 m in the air the ball is at $d \doteq 8.7$ m and $d \doteq 1.3$ m

8. The integers are –14 and 17 **OR** –17 and 14

9. The base is about 4.67 cm.

10. The dimensions: width = $\dfrac{-1+\sqrt{13}}{2}$ metres, length = $1+\sqrt{13}$ metres

11. For the area of the path to match the area of the garden, $x = 1.5$ m.