

1. Given the following quadratics – state the coordinates of the vertex, maximum or minimum value, domain, range, y intercept, vertical stretch, equation of axis of symmetry and sketch a graph
 - a) $y = -2(x - 1)^2 + 4$
 - b) $3(y + 2) = (x + 4)^2$
 - c) $y = -x^2 + 4x - 3$
 - d) $y = -\frac{1}{4}x^2 - 3$
 - e) $f(x) = 5x^2 - 10x$
2. Find the equation, in standard form, for each parabola below:
 - a) Vertex $(-5, 3)$ and passing through $(1, 2)$
 - b) Minimum value of -6 and with x intercepts $(-2, 0)$ and $(6, 0)$
3. A gardener has 250 m of fencing and wants to fence 3 sides of his garden. Find the maximum area he can enclose and what are the dimensions?
4. The path of a submarine is described by $y = 3x^2 - 10x - 50$.
 - a) How deep is the sub initially?
 - b) What is the deepest point the sub will reach and when?
 - c) How long is the sub underwater?
5. Find the zeros (x intercepts or roots) of the following
 - a) $y = 5x^2 - 18x - 8$
 - b) $y = 2x^2 - 10x - 20$
6. Solve the following quadratic equations:
 - a) $x^2 - x = 12$
 - b) $x^2 + 3x - 5 = 0$
 - c) $3x^2 - 2x + 4 = 0$
7. For each pair of roots, find the quadratic equation in general form
 - a) $-4, \text{ or } 5$
 - b) $-\frac{5}{3} \text{ or } -\frac{1}{2}$
 - c) $\pm 3i$
8. If one root of $3x^2 - 13x + c = 0$ is '5', find the other root and the value of 'c'
9. For what value of 'c' does $y = 9x^2 + 12x + c$ have real and equal roots?
10. The sum of the squares of 3 consecutive positive odd numbers is 1883. Find the numbers
11. A jet flew from Moncton to Vancouver, a distance of 4200 km. ON the return trip the speed was increased by 100 km/h. If the total trip took 13h, find the speed from Vancouver to Moncton.
12. A playground measuring 60m by 40m is to be doubled in area by extending each side an equal amount. By how much should each side be extended?
13. The length of a rectangle is 6m more than the width. If the area of the rectangle is 91m^2 , find the dimensions of the rectangle.
14. The sum of a number and twice its square is 300. Find the number
15. Calculate the discriminant and describe the roots:
 - a) $y = 3x^2 + 2x - 5$
 - b) $y = x^2 - 10x + 25$
 - c) $y + 10 = -2x^2 + 5x$