

MATH1050 Answers to Examples: Quadratic polynomials and quadratic functions.

1. $c, \frac{5}{6} - c$.
2. -4 .
3. (a) 33
(b) 1057
(c) 185
(d) $43/4$
(e) $\sqrt{41}$
(f) $5\sqrt{41}$
(g) $1/32$
(h) 2
4. (a) i. $ax^2 + (2a + 3b)x + (a + 3b + 9c)$
ii. $a^2x^2 + (2ac - b^2)x + c^2$.
iii. $a^2x^2 + 4abx + (3b^2 + 4ac)$.
(b) i. $acx^2 + (2ac - b^2)x + ac$.
ii. $acx^2 + b(a + c)x + (a + c)^2$.
iii. $a^2c^2x^2 + (2ac - b^2)(a^2 + c^2)x + (a^2 + c^2)^2$.
5. $a = -4, b = 8$.
6. —
7. —
8. (a) $g(x) = x^2 - (8 - 6k)x + k^3 = x^2 + (6k - 8)x + k^3$.
(b) The discriminant Δ_g of $g(x)$ is given by $\Delta_g = 4(1 - k)(4 - k)^2$.
(c) $k = 4$.
9. —
10. —
11. (a) i. —
ii. $3p + 5$
iii. —
(b) —
12. —
13. —
14. (a) —
(b) f attain both values $-3, 1$.
15. (a) —
(b) —
(c) f attains the value 4.