

MATH1050 Exercise 1 Supplement (Answers)

1. (a) $x = -\frac{46}{3}$.
 (b) $x = 4$.
 (c) $x = -\sqrt{3}$ or $x = \sqrt{3}$.
 (d) $x = -\frac{3}{2} + \frac{\sqrt{33}}{2}$ or $x = -\frac{3}{2} - \frac{\sqrt{33}}{2}$.
2. (a) $x = 8$.
 (b) No real solution.
 (c) $x = 9$.
 (d) $x = \frac{9}{4}$.
 (e) $x = 3$.
 (f) $x = 3$.
 (g) $x = 2$.
 (h) $x = 441$.
 (i) $x = -\sqrt{17}$ or $x = \sqrt{17}$
3. (a) $x = 2$.
 (b) $x = 0$ or $x = \log_5(4)$.
 (c) $x = 2$ or $x = -2 - 2\log_2(3)$.
 (d) $x = 1$.
 (e) $x = 3$ or $x = 7$.
 (f) $x = \frac{1}{2}$ or $x = 8$.
 (g) $x = 1$.
 (h) $x = 2$.
 (i) $x = 343$.
 (j) $x = e^2$ or $x = 1$.
 (k) $x = \sqrt{e}$ or $x = e^{-3}$.
4. (a) $x = 12$ or $x = -\frac{26}{3}$.
 (b) $x = -4/3$ or $x = 16/3$.
 (c) $x = -1$ or $x = 1/5$.
 (d) $x = -1$ or $x = 6$ or $x = 2$ or $x = 3$.
 (e) $x = -5$ or $x = 4$ or $x = -3$ or $x = 2$.
 (f) $x = 0$ or $x = 1$ or $x = 4$ or $x = 5$.
 (g) $x = \frac{2}{3}$.
 (h) $x = 1$ or $x = 2$ or $x = 4$.
 (i) $x = 0$ or $x = 2$ or $x = 3$.
 (j) $x \geq 1$.
 (k) $x = -5$ or $x = -1$ or $x = 2$ or $x = 6$.
 (l) $x = -3$ or $x = -1$ or $x = 2$.
 (m) $x = -1$ or $x = 7$.
 (n) $x = 1$ or $x = 9$.
 (o) $x \leq 0$ or $x \geq 1$.
5. (a) Every real value of x is a solution of the equation.
 (b) Every real value of x is a solution of the equation.
 (c) No solution.
 (d) No solution.
 (e) $x = -1$.
- (f) Every real value of x other than 0 is a solution of the equation.
 (g) Every real value of x other than 1 is a solution of the equation.
 (h) Every real value of x other than 1, -1 is a solution of the equation.
6. (a) $(x, y) = \left(\frac{3}{7}, \frac{13}{7}\right)$ or $(x, y) = (1, 1)$.
 (b) $(x, y) = (4, 5)$ or $(x, y) = (-7, 16)$.
 (c) $(x, y) = (0, 0)$ or $(x, y) = (-2, 2)$ or $(x, y) = \left(-\frac{6}{7}, \frac{4}{7}\right)$.
 (d) $(x, y) = (0, 0)$ or $(x, y) = (2, 1)$ or $(x, y) = \left(-\frac{2}{5}, \frac{1}{5}\right)$.
 (e) $(x, y) = \left(\frac{1}{5}, \frac{1}{3}\right)$ or $(x, y) = \left(-\frac{1}{5}, -\frac{1}{3}\right)$ or $(x, y) = \left(\frac{1}{3}, \frac{1}{5}\right)$ or $(x, y) = \left(-\frac{1}{3}, -\frac{1}{5}\right)$.
 (f) $(x, y) = (1, 2)$ or $(x, y) = (-1, 2)$ or $(x, y) = (-1, -2)$ or $(x, y) = (1, -2)$ or $(x, y) = (2, 1)$ or $(x, y) = (-2, 1)$ or $(x, y) = (-2, -1)$ or $(x, y) = (2, -1)$.
 (g) $(x, y) = (1, 4)$ or $(x, y) = (-1, -4)$ or $(x, y) = (4, 1)$ or $(x, y) = (-4, -1)$.
 (h) $(x, y) = (5, 2)$.
7. (a) $x = \frac{c+1}{c}$.
 (b) (\star_0) has no solution.
8. (a) $x = c + 1$.
 (b) Every real value of x is a real solution of (\star_0) .
9. (a) $x = \frac{b-2}{a^2-4a+3}$.
 (b) i. $(a, b) = (1, 2)$ or $(a, b) = (3, 2)$.
 ii. When $(a, b) = (1, 2)$ or $(a, b) = (3, 2)$, every real value of x is a solution of $(\star_{a,b})$.
10. (a) $c = 4$.
 (b) $(x, y) = (-1, 2)$.
11. —
12. —
13. —
14. —
15. —
16. —
17. —
18. —
19. —
20. —
21. $P = 16, Q = 4$.
22. $A = 2, B = 3, C = 2$.