

IM2 Book 1 Selected Answers

IM2 Dream Team

September 9, 2025

1. $x = -3$

2. $-$

3. (a) $x(x + 4)$
 (b) $3x(x - 5)$
 (c) $-x(2x + 7)$

4. (a) $x = 0, 4$
 (b) $x = 0, 5$
 (c) $x = 0, -\frac{7}{2}$

	$2 \leq x$	$-$	all values that are at least 2	$-$
5.	$-4 < x < 0$	$-$	$-$	$(-4, 0)$
	$x < 1$	$-$	all values that are less than 1	$(-\infty, 1)$

6. Answers may vary. Soln: $(0, 5)$. Non-soln: $(0, 0)$.

7. $4a^2, 2a^2$

8. (a) $-$
 (b) $24 \leq x$

9. $(x + 4)(x + 1)$. 4 and 1 add to 5 and multiply to 4.

10. $x^2 + (q + p)x + pq$. $\nabla = (q + p)$. $\Delta = pq$.

11. (a) $-$
 (b) $37 \leq 37$
 (c) $-$
 (d) $x \geq 18$

12. $x = 1, -4, \frac{3}{2}$

13. (a) Answers may vary.
 System soln: $(2, 4)$
 Soln to one eqn but not the other: $(0, 0)$
 Not a system soln: $(0, 0)$

(b) -

(c) One solution.

14. Answers may vary.

$$\begin{cases} y = x \\ y = x + 1 \end{cases}$$

15. Answers may vary.

$$\begin{cases} y = x \\ 2y = 2x \end{cases}$$

16. $(3x)^2$

17. $x > -5$

18. (a) $x \leq -10$

(b) $x \leq -10$

19. (a) $x = -4$

(b) $x = 3, 5$

(c) $x = -1, 7$

20. (a) $(\frac{1}{2}, \frac{1}{3})$

(b) $(1, -2)$

21. (a) -

(b) $y = x^2$

22. (a) $f(2) = 5$

$f(-4) = -1$

(b) $x = -1$

23. (a) $2x + y = 3$

(b) No solutions

	Words	Function Formula
24.		$f(x) = 2x$
		$f(x) = 5x - 1$
	divide the input by 2 and add 5	

25. (a) $f(-3) = 3$

$f(0) = 0$

$f(2) = 2$

(b) $x = \pm 4$

26. (a) -

- (b) 6
(c) $x = \pm 10$
27. $(3x + 4)(x - 3)$
28. (a) $-7 \leq x$
(b) $x < 4$
29. (a) 5
(b) 12
(c) $|x - y|$
30. No
31. $x \geq 0$
32. $|a - b| = |b - a|$
33. $(4x + 1)(x + 5)$