

CHAPTER 3 Sequences**EXERCISE 3a (p. 47)**

There are other possible ways of describing how to continue a sequence.

1. 25, 36, Square the next natural number
2. 15, 18, Add 3 to the previous term, or multiply the next natural number by 3
3. 35, 42, Add 7 to the previous term, or multiply the next natural number by 7
4. 10, 14, Add 4 to the previous term
5. $-1, -5, \dots$ Take 4 from previous term
6. $\frac{1}{8}, \frac{1}{16}, \dots$ Divide previous term by 2
7. 30, 42, Add to the previous term a number that increases by 2 each time
8. 720, 5040, Multiply the previous term by a number that increases by 1 each time
9. 15, 33,
10. 12,
11. 10, 12, 14,
12. $1, \frac{1}{2}, \frac{1}{4}, \dots$
13. 8, 14, 22,
14. 18, 54, 162,
15. 6, 10, 16,
16. 0.01, 0.001, 0.0001,
17. $-1, -3, -5, \dots$
18. 8, $-16, 32, \dots$

There are other possible answers to Numbers 19–22.

19. Multiply previous term by 3; add a number 4 greater than was added to previous term.
20. Add a number 2 greater than was added to previous term; double previous term and add 1.
21. Square the next natural number; add a number 2 greater than was added to previous term.
22. Multiply previous term by 2; add a number 3 greater than was added to previous term.
23. $\frac{1}{5}, \frac{1}{6}, \dots$
24. 13, 17,
25. 54, 6,
26. 45, 9,
27. 81, 5, ...
28. 16, 5,
29. a) (5,26),
b) (10,101),
30. 15, 21, 28, 36,
31. 1, 4, 9, 16, 25,
32. 1, 5, 14, 30, 55,
33. a) 13, 21, 34,
b) 2, 5, 7, 12, 19, 31,
34. 3, 12, 48, 192, 768, 3072,

EXERCISE 3b (p. 50)

1. 3, 5, 7, 9, 15
2. 1, 3, 5, 7, 13

3. 2, 4, 8, 16, 128

4. 1, 4, 9, 16, 49

5. 0, 3, 8, 15, 48

6. 5, 6, 7, 8, 11

7. 5, 7, 9, 11, 17

8. $1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \dots, \frac{1}{7}$

EXERCISE 3c (p. 51)

1. $3n$

2. $-n$

3. $n + 1$

4. $n - 1$

5. $4n$

6. 2^n

7. $2n + 5$

8. $3n - 3$ or $3(n - 1)$

9. $\frac{1}{(n+2)}$

10. $n(n+2)$

11. n^3

12. $4 - n$

13. $2n + 4, 8/2^n, n^2 - n + 2, 2 \times 3^{n-1}$

14. a) 2m b) 20m c) $n(n+1)$ metres