

Sequences and Series Review

Answer key Final answers only. Try first, then check.

CORE SKILLS

- K1** a) $d = 3, t_{20} = 52$
 b) $t_n = 48 - 7n; t_{15} = -57$
 c) t_{22} (the 22nd term)
- K2** a) $r = -2, t_{10} = -1536$
 b) $t_n = 5(3)^{n-1}; t_6 = 1215$
 c) t_7 (the 7th term)
- K3** a) 7, 12, 19, 31
 b) $t_n = 4n + 5$
 c) Neither; $t_1 = 3, t_n = 2t_{n-1} + 1$
- K4** a) 987 (21 terms)
 b) 750
 c) 12 terms
- K5** a) 6560
 b) 8 terms
 c) 42

REAL WORLD

- A1** a) \$14.50
 b) \$195.00
 c) $n^2 + 19n - 4000 = 0$ gives $n \approx 54.5$ (the negative root is not a number of weeks). He first passes \$1000 in week 55, so no. After 52 weeks he has \$923.00.
- A2** a) $t_n = 4(3)^{n-1}; 972$ people
 b) Round 11 (236 196 people; round 10 has 78 732)
 c) Round 15 (about 19.1 million). That is more new people than live in Ontario, so the model must break down before round 15: the message runs out of people who have not seen it.
- A3** a) 1.296 m
 b) 37.67 m
 c) The 14th rebound (about 0.78 cm). Past this point the model no longer describes a real ball: a real ball stops bouncing after finitely many bounces.

THINK IT THROUGH

- T1** a) 1 and -29 . The two expressions disagree at $x = 1$, so the expansion is wrong.
 b) $(3x)^k$ was written as $3x^k$; it is $3^k x^k$. Correct: $81x^4 - 216x^3 + 216x^2 - 96x + 16$
 c) The x -term contains $(3x)^1 = 3x$, and the constant term contains no factor $3x$, so writing $3x^k$ for $(3x)^k$ changes nothing there.
- T2** a) $t_n = 4n + 3$ ($a = 7, d = 4$)
 b) $t_n = 2(3)^{n-1}$ or $t_n = -2(-3)^{n-1}$
 c) Geometric: $x = 6$ or $x = -6$. Arithmetic: $x = 10$.

BOSS LEVEL

- Boss**
- a) 15 150
 - b) 9150
 - c) 24 000
-

Free worksheet · vertexmath.ca · Free to print and share for classroom use

Free to print, copy, adapt and share for classroom use · CC BY-NC 4.0 · © VertexMath



vertexmath.ca

Hints, answers &
more worksheets