

## Section 1.3 Extra Practice

- Is each sequence geometric? If it is, state the common ratio and a formula to determine the general term in the form  $t_n = t_1 r^{n-1}$ .
  - 11, 33, 99, 297, ...
  - 6, 12, 18, 24, ...
  - $\frac{1}{3}, \frac{2}{3}, \frac{4}{3}, \frac{8}{3}, \dots$
  - 0.5, 0.2, 0.08, 0.032, ...
- Write the first four terms of each geometric sequence.
  - $t_1 = 7, r = -3$
  - $t_1 = -8, r = \frac{1}{2}$
  - $t_n = 3(0.6)^{n-1}$
  - $t_n = (-4)^n$
- Determine the number of terms in each geometric sequence.
  - 4, 12, 36, ..., 78 732
  - $5\sqrt{2}, 10, 10\sqrt{2}, \dots, 640$
  - $t_1 = 5, r = -\frac{1}{2}, t_n = \frac{5}{64}$
  - $t_1 = \frac{1}{4}, r = 3, t_n = 44\ 286.75$
- Determine the  $n$ th term of each geometric sequence.
  - $t_1 = 2, r = 7$
  - 6, -18, 54, -164, ...
  - $t_1 = 7, t_5 = 1792$
  - $r = \frac{1}{4}, t_8 = \frac{1}{4}$
- Determine the unknown terms in each geometric sequence.
  - 18,  $\square$ ,  $\square$ , 6174
  - $\square$ , 4,  $\square$ ,  $\square$ , 108
  - 5,  $\square$ ,  $\square$ ,  $\square$ , 80
- The first term of a geometric sequence is 0.1; the tenth term is 26 214.4. Determine the value of the common ratio.
- Determine the first term, the common ratio, and an expression for the general term of each geometric sequence.
  - $t_5 = 900, t_7 = 0.09$
  - $t_3 = -1728, t_6 = 373\ 248$
  - $t_5 = 28, t_{11} = 1792$
  - $t_2 = 3, t_4 = 0.75$
- The following sequences are geometric. What is the value of each variable?
  - $8x - 12, 16, 64, 256, \dots$
  - 25, 5, 1,  $2y - 1, \dots$
- For a geometric sequence  $t_4 = 4x + 8$  and  $t_7 = x - 4$ . If the common ratio is  $\frac{1}{2}$ , what is the first term?
- An excavating company has a digger that was purchased for \$240 000. It is depreciating at 12% per year.
  - Determine the next three terms of this geometric sequence.
  - Determine the general term. Define your variables.
  - How much will the digger be worth in 7 years?
  - How long will it take before the equipment is worth less than \$120 000?

