Geometric series

1

a 14.29

b -204.92

2

a $r = \frac{1}{2}$

b 10.0

3 $1\,062\,880$

4 $\frac{5461}{64}$

5 683

6 17

7 9.143

8

a $x\left(\frac{1-\left(\frac{3}{4}x\right)^n}{1-\frac{3}{4}x}\right)$

b $13\,120$

9 $\frac{1-4\times\left(\frac{1}{4}\right)^n+3\times\left(\frac{1}{5}\right)^n}{12}$

10 $u_1 = 1458$

11 $r = 2$

12

a $n = 14$

b $n = 7$

13

a $n = 9$

b 85.333

14

a $n = 12$

b $-531\,440$

15 $n = 6$

16

a $S_n = 5\left(2^n - 1\right)$

b $n = 9$

c 14 terms

d $S_{14} = 81\,915$

e No solution provided.

17

a 52

b 53 terms

Applications

18

a $\$8191$

b $\$536\,870\,911$

19

a $\$50\,612.76$

b $\$132\,659.51$

20

a 759 nurses

b 3980 nurses

21

a $9516\ \text{m}^3$

b $9984\ \text{m}^3$