

Arithmetic series

1

a 195

b 0

c 47.5

d 5

e 85

2

a 450

b -45

c 105

3 $\frac{255}{2}$

4 210π

5

a 4920

b -2260

6 $n = 10$

7

a $d = 4$

b 390

8

a $n = 18$

b 432

9 No solution provided.

10

a $u_1 = \frac{85}{3} - 7d$

b $u_1 = \frac{113}{3} - 14d$

c $d = \frac{4}{3}$

d $u_1 = 19$

e 875

11

a $u_1 = \frac{62}{3} - 5d$

b $u_1 = \frac{98}{3} - 14d$

c $d = \frac{4}{3}$

d $u_1 = 14$

e $n = 25$

12

a $u_1 = 48 - 14d$

b $u_1 = \frac{-5d + 4}{2}$

c $d = 4$

d $u_1 = -8$

e 2100

13

a $u_1 = -d$

b $u_1 = \frac{-5d + 21}{2}$

c $d = 7$

d $u_1 = -7$

14

a $u_1 = \frac{-7d + 15}{2}$

b $u_1 = -6d + 20$

c $d = 5$

d $u_1 = -10$

e $S_n = \frac{n}{2}(5n - 25)$

f $n = 28$

15

a $u_1 = -2d + 12$

b $u_1 = \frac{49 - 9d}{2}$

c $d = 5$

d $u_1 = 2$

e 189

16

a $u_1 = -5$

b $u_2 = 5$

c $d = 10$

d $u_n = -15 + 10n$

17 $u_{10} = 59$

18

a $S_n = \frac{n}{2}(-3n + 11)$

b -504

19 180

20

a $d = -y - 2$

b $y(y + d)(y + 2d) = 90$

c $y = -9$

d -9, -2, 5

Applications

21

a \$43 920

b $\frac{m}{2}(82\,080 + 1920m)$ dollars

c $y = 9$

22 \$2670

23

a 8750 phones

b 250 800 phones

24 1510 cm

25

a $3 + n$

b No solution provided.

26

a $6k - 2$

b $n(3n + 1)$

c $n = 11$

27

a 51 minutes

b $n = 36$

28

a 4.85 km

b $n = 12$

c 112.70 km

29

a 359 kg

b 6573 kg

c $n = 21$

d 25