

1. State properties of the sequence $\left\{\frac{n}{5}\right\}_{n=1}^{\infty}$
2. In an AP the 4th term is 0, the 6th term is -4. How many terms are to be summed if the sum is 12?
[3 or 4]
3. AP: the 5th term is 23, the 12th term is 37. Find the 1st term, the common difference and the sum of the first eleven terms.
[$a_1 = 15, d = 2, s_{11} = 275$]
4. In an AP, the 10th term is 3 and sum of the first 6 terms is 76,5. Find the 1st term, difference and the smallest value for n such that $s_n < 0$.
[$a_1 = 16.5, d = -1.5, n = 24$]
5. Find the 5th term and sum of the first 5 terms of a GP, when 1st term is 27, and $q = 2/3$.
[$a_5 = 16/3, s_5 = 211/3$]
6. A GP has first term 27 and $q = 4/3$. Find the least number of terms the GP can have if its sum exceeds 550.
[$n = 8$]
7. In a GP the 3rd term is 32, the 6th term is 4. Find the 1st term, quotient, and the sum of the first eight terms of the GP.
[$a_1 = 128, q = 1/2, s_8 = 255$]
8. State which is the first term to be negative for the following AP: 843, 836, 829, 822, etc.
[122]
9. In an AP the 2nd term is -12, and sum of the first 12 terms is 18. Find the 1st term, difference and the 6th term. An AP has 1st term -5 and d is 1.5. Find the greatest number of terms the AP can have, given that the sum of the terms does not exceed 450.
[$a_1 = -15, d = 3, a_6 = 0$]
10. Three consecutive terms of an AP have a sum of 36 and a product of 1428. Find the three terms.
[7, 12, 17]

11. A mathematical child negotiates a new pocket money deal with her unsuspecting father in which she receives 1p on the 1st day of the month, 2p on the 2nd day, 4p on the 3rd day, 8p on the 4th day, 16 p on the 5th day, ... until the end of the month. How much would the child receive during the course of a month of 30 days?
[£ 11 million]
12. A product of three consecutive terms of an AP equals to their sum. Find these terms if $d = \frac{13}{3}$.
[there are three solutions: $-\frac{13}{3}, 0, \frac{13}{3}$ or $\frac{1}{3}, \frac{14}{3}, 9$ or $-9, -\frac{14}{3}, -\frac{1}{3}$]
13. The sides of a right-angled triangle form three consecutive terms of an AP. Find them if you know that the surface is 6 dm^2 .
[4, 3, 5]
14. The interior angles of a triangle form three consecutive terms of an AP. Find them if the sum of their cosines is $\frac{5}{4}$.
[$18^\circ 35', 60^\circ, 101^\circ 25'$]
15. Find the first 5 terms of a GP, if $s_4 = 15$ and $s_8 - s_4 = 240$.
[there are 2 solutions: 1, 2, 4, 8, 16 or -3, 6, -12, 24, -48]
16. If we add the same number to the numbers 2, 7, 17, we will obtain the first 3 terms of a GP. Find those terms.
[5, 10, 20]
17. Železné rúry sa skladajú vo vrstvách tak, že rúry každej hornej vrstvy zapadajú do medzier dolnej vrstvy. Do koľkých vrstiev uložíme 102 rúr, ak v najvrchnejšej majú byť 3 rúry? Koľko rúr bude v najspodnejšej vrstve?
[12 vrstiev, 14 rúr]
18. Teplota Zeme rastie s hĺbkou o 1°C na 33 metrov. Urči, aká je teplota na dne bane hlbkej 1015 metrov, ak v hĺbke 25 metrov je teplota 9°C .
[39°C]
19. Baktérie sa v rastovom médiu množia delením, ku kt. dochádza vždy raz za pol hodiny. Koľko baktérií sa namnoží za 12 hodín z 1 baktérie?
[16 770 000]