Summer Term Maths Year 10

Explore Geometric and Arithmetic sequences

Day 1

Week 12

1 a) Explain why this sequence is an example of an arithmetic sequence.

7, 12, 17, 22, 27, ...

The difference between one term and the next is constant.

b) What is the next term in the sequence? 32

2 For each of the arithmetic sequences, write the next term and find the common difference.

a) 11, 15, 19, 23, ... 27 common difference 4

b) -4, -8, -12, -16, ...-20 common difference -4

c) 66, 77, 88, 99, ... 110 common difference 11

d) 15, 4, -7, -18, ... -29 common difference -11

e) 2.5, 2.8, 3.1, 3.4, ...3.7 common difference 0.3

3 Write the first 6 terms of the arithmetic sequence for each of the following.

a) First term 3, common difference -4

3, -1, -5, -9, -13, -17

b) First term 3 common difference 0.25

3, 2.75, 2.5, 2.25, 2, 1.75, 1.5

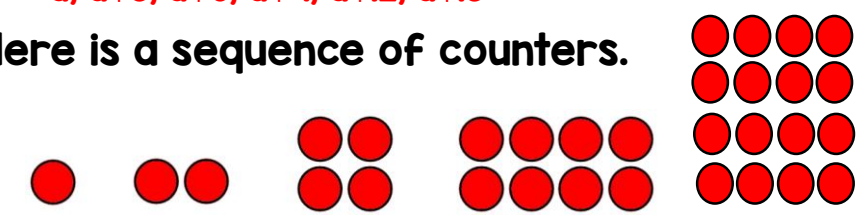
c) Second term 8, common difference 3

5, 8, 11, 14, 17, 20, 23

d) First term a, common difference 3

a, a+3, a+6, a+9, a+12, a+15

4 Here is a sequence of counters.



a) Draw the next pattern.

b) Is the sequence arithmetic? Explain your answer. No as it doesn't have a constant common difference.

White Rose Maths

Summer Term Maths Year 10

Explore Geometric and Arithmetic sequences

Day 1

Week 12

5 a) Explain why this sequence is an example of a geometric sequence.

1, 2, 4, 8, 16, ... As each term is multiplied by a constant value to get the next term.

b) What is the next term in the sequence? 32

6 Find the common ratio for each of the geometric sequences and write the next 2 terms.

a) 1, 3, 9, 27, ... 81, 243 common ratio 3

b) 4, 12, 36, 108, ... 324, 972 common ratio 3

c) 5, 50, 500, 5000, ... 50000, 500000 common ratio 10

d) 20, 10, 5, 2.5, ... 1.25, 0.625 common ratio 0.5

7 Write the first 4 terms of the geometric sequences for each of the following.

a) First term 100, common ratio 2 100, 200, 400, 800

b) First term 100, common ratio 0.5 100, 50, 25, 12.5

c) First term 50, common ratio 0.5 50, 25, 12.5, 6.25

d) First term 50, common ratio 5 50, 250, 1250, 6250

8 Here is part of a sequence with two terms missing.

..., 3, ☐, ☐, 648, ...

Find the missing terms if the sequence

a) is geometric 18 and 108

b) is arithmetic 218 and 433