

IGCSE1 Math worksheet 1: rational, irrational and sequence

Name: _____

Score: _____

Show all work clearly and in order, and circle your final answers. Justify your answers algebraically whenever possible; when you do use your calculator, sketch all relevant graphs and write down all relevant mathematics.

Due: 26 Aug.

1. For each of the following, state whether it is rational or irrational. If it is rational, convert it into fraction.

(1) 1.7

(2) $1.\dot{1}\dot{7}$

(3) $\sqrt{0.016}$

2. Write down the formula for the n-th term if

(1) the first term a_1 and the common difference d are given in an arithmetic sequence

(2) the first term a_1 and the common ratio r are given in an geometric sequence

3. For each of the sequences given below, find the formula for the n-th term.

(1) 65, 62, 59, 56, 53, ...

(2) 81, 27, 9, 3, 1, ...

(3) 0.7, 0.5, 0.3, 0.1, ...

4. For each of the sequence, find the next two terms.

(1) -3, 3, 8, 13, 17, 21, 24, ...

(2) 9, 3, 3, 9, 21, ...

5. The third and seventh terms of an arithmetic series are 175 and 105 respectively.

(1) Find the first term and common difference of this series.

(2) Find the summation $S_n = a_1 + a_2 + a_3 + \cdots + a_n$

(3) Determine the number of terms that must be taken so that the sum is zero.

6. Three consecutive terms of a geometric sequence have a sum of 28 and a produce of 512. Find all these three numbers.

7. In an geometric sequence, the third term is 8 times of the sixth term and the summation for the first 3 terms is 28.

(1) Find the first term and common ration

(2) Find the expression for the n-th term