

(1) Thinking about sequences

1. These sequences all increase in equal-sized steps. Fill in the blanks.

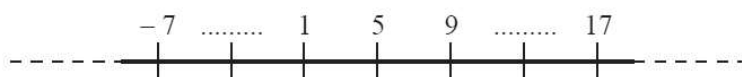
- | | |
|--------------------------|------------------------|
| a. 2 5 ___ 14 ___ | k. ___ 39 ___ 75 ___ |
| b. ___ 13 22 ___ | l. ___ 35 ___ 67 ___ |
| c. ___ 17 21 ___ | m. ___ 35 ___ 20 |
| d. 1 ___ 11 ___ 21 ___ | n. ___ 2.4 ___ 3.4 ___ |
| e. ___ 10 19 ___ | o. 3.6 ___ 10.8 ___ |
| f. ___ ___ 34 40 ___ 52 | p. ___ 2.7 ___ 4.2 |
| g. 5 ___ ___ 17 ___ 23 | q. -3 ___ 13 ___ |
| h. ___ ___ 34 40 ___ 52 | r. -7 ___ 48 ___ |
| i. ___ 13 ___ 37 ___ 53 | s. ___ -2 ___ 13 ___ |
| j. ___ ___ 23 ___ 44 ___ | t. 3.2 ___ 4.7 ___ |

2. These sequences all decrease in equal-sized steps. Fill in the blanks.

- | | |
|--------------------------|--|
| a. 15 12 ___ 3 ___ | k. ___ 11 ___ 7 ___ |
| b. ___ 52 43 ___ | l. ___ 67 ___ 51 ___ |
| c. ___ 21 17 ___ | m. ___ 3 ___ -7 |
| d. 21 ___ 11 ___ 1 ___ | n. ___ 8.4 ___ 6.4 ___ |
| e. ___ 38 29 ___ | o. 8.4 ___ 6.4 ___ |
| f. ___ ___ 40 32 ___ 16 | p. ___ 0.6 ___ -0.9 |
| g. 23 ___ ___ 11 ___ 5 | q. -3 ___ -11 ___ |
| h. ___ ___ 50 42 ___ 26 | r. 48 ___ -7 ___ |
| i. ___ 53 ___ 67 ___ 77 | s. ___ 13 ___ -2 ___ |
| j. ___ ___ 23 ___ 17 ___ | t. $\frac{13}{2}$ ___ $\frac{21}{4}$ ___ |

3.

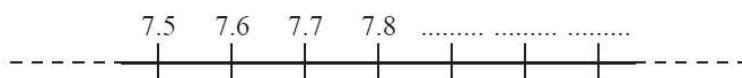
- (a) Look at this part of a number line.
Write down the 2 missing numbers.



Copy and complete this sentence:

The numbers on this line go *up* in steps of

- (b) This is a *different* number line.
Write down the 3 missing numbers.



Copy and complete this sentence:

The numbers on this line go *up* in steps of

(KS3/97/Ma/Tier 4-6/P1)

(2) Terms

1. For each sequence,
 - a. how many terms are written?
 - b. write the next three terms.

- | | |
|--------------------------------|---|
| i. 2, 3, 4, 5, 6, 7, 8, 9, ... | ii. 12, 8, 4, 0, -1, -2, ... |
| iii. 10, 8, 6, ... | iv. 7, 8, 9, 10, 11, 12, 13, 14, 15, ... |
| v. 13, 16, 19, 22, ... | vi. 100, 200, 300, 400, 500, 600, ... |
| vii. 10, 9.7, 9.4, ... | viii. $\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}, \dots$ |

2.
 - a. Complete the table. The first one is done for you.

	First four terms	Increasing/ Decreasing	1 st term	3 rd term	8 th term	Term-to-term rule: <i>From term to term we ...</i>
e.g.	4, 7, 10, 13, ...	Increasing	4	10	25	start at 4 and add 3
a	9, 11, 13, 15, ...					
b	9, 10, 11, 12, ...					
c	12, 11, 10, 9, ...					
d	12, 9, 6, 3, ...					
e			2			start at ____ and add 10
f			20			start at ____ and subtract 10
g				15		start at ____ and add 4
h				19		start at ____ and add 2
i	0, 0.3, 0.6, 0.9, ...					
j	$0, \frac{3}{10}, \frac{3}{5}, \frac{9}{10}, \dots$					
k					5	start at ____ and subtract 5
l				0		

b. Write three more (different) solutions to Part l in the table. Try to make each one more challenging than the one before.

3. How many terms are missing from the middle of these sequences?

a. 2, 5, 8, -----, 29, 32	b. 3, 7, 11, -----, 59, 63
c. 100, 95, 90, -----, 15, 10	d. 0.1, 0.3, 0.5, -----, 2.1, 2.3