

Linear Patterns #3

Write the equations for these patterns:

1

x	y
1	9
2	11
3	13
4	15
5	17

2

n	p
1	-2
2	-7
3	-12
4	-17
5	-22

3

x	y
1	-24
2	-20
3	-16
4	-12
5	-8

4

x	y
1	14
2	18
3	22
4	26
5	30

5

a	b
0	3
1	10
2	17
3	24
4	31

6

x	y
1	14
2	11.5
3	9
4	6.5
5	4

7

x	y
-2	36
-1	38
0	40
1	42
2	44

8

a	b
12	-70
13	-77
14	-84
15	-91
16	-98

9

x	y
19	118
20	124
21	130
22	136
23	142

10. What is the 50th term in the pattern: 11, 15, 19, 23, 27 ... ?
11. Which term is the first in the pattern 93, 100, 107, 114, ... to be over 1000?
12. For which term does the pattern 10, 14, 18, 22, ... have the same value as the pattern 1000, 998, 996, 994, ... ?

Linear Patterns #3 – Answers

1 $y = 2x + 7$

2 $p = -5n + 3$

3 $y = 4x - 20$ (Note the terms are getting less negative, so increasing by 4 each step)

4 $y = 4x + 10$

5 $b = 7a + 3$ (Note, this pattern starts at $x = 0$, not $x = 1$ like usual)

6 $y = -2.5x + 16.5$

7 $y = 2x + 40$ (Note where the $x = 0$ term is)

8 $b = -7a + 14$

9 $y = 6x + 4$

10 Formula is $4x + 7$, so $4 \times 50 + 7 = 207$

11 93, 100, 107, 114, ... is $t_n = 7n + 86$

$$7n + 86 > 1000$$

$$7n > 914$$

$$n > 914 \div 7$$

The 131st term is the first one over 1000.

12 10, 14, 18, 22, ... is $t_n = 4n + 6$

1000, 998, 996, 994, ... is $t_n = -2n + 1002$

$$4n + 6 = -2n + 1002$$

$$6n = 996$$

The 166th term (they are both 670)

