

Linear Patterns #1

Write the equations for these patterns:

1

x	y
1	7
2	11
3	15
4	19
5	23

2

n	p
1	0
2	-6
3	-12
4	-18
5	-24

3

x	y
1	-8.5
2	-8
3	-7.5
4	-7
5	-6.5

4

x	y
1	-3
2	0
3	3
4	6
5	9

5

a	b
1	10
2	6
3	2
4	-2
5	-6

6

x	y
1	-8
2	-6
3	-4
4	-2
5	0

7

x	y
0	13
1	16
2	19
3	22
4	25

8

a	b
24	189
25	197
26	205
27	213
28	221

9

x	y
16	-62
17	-66
18	-70
19	-74
20	-78

10. What is the 40th term in the pattern: 12, 15, 18, 21, 24 ... ?
11. Which is the first term in the pattern 320, 316, 312, 308 ... that is negative?
12. If a pattern goes: a , 11, b , c , d , 35 ... , where a , b , c , and d are unknown values, what is the rule for the pattern?

Linear Patterns #1 – Answers

1 $y = 4x + 3$

2 $p = -6n + 6$

3 $y = 0.5x - 9$

4 $y = 3x - 6$

5 $b = -4a + 14$

6 $y = 2x - 10$

7 $y = 3x + 13$ (Note, this pattern starts at 0, not 1 like usual)

8 $b = 8a - 3$

9 $y = -4x + 2$

10 Formula is $3x + 9$, so $3 \times 40 + 9 = 129$

11 320, 316, 312, 308 ... is $t_n = -4n + 324$

$$-4n + 324 < 0$$

$$324 < 4n$$

$$324 \div 4 < n$$

The 82nd term is the first negative one.

12 For $a, 11, b, c, d, 35 \dots$

From the 2nd term = 11 to the 6th term = 35 is an increase of 24 for 4 terms

So the equation is going up in $24 \div 4 = 6$ for each term

Going two lots of 6 back from the 2nd term gives us the equation: $y = 6x - 1$