changing the subject

1. a) $x=4y-4$ b) $x=13+7y$ c) $x=12-14y$ d) $x=13y-11$ e) $x=2y+9$ f) $x=6y+15$ 2. a) $y=2x-5$
b) $y=5-q-p$ c) $y=\frac{p}{2}$ d) $y=p+q-5$ e) $y=9-x$ f) $y=2x+43$. a) $a=5b+2c$ b) $a=2p+3$ c) $a=q-5p$ d) $a=3q-2p$
e) $3-q-b=a$ f) $a=5q-2b$ 4. a)

which sequences will contain the number 1000?

Each number is double the number in the row above, so $1000\div2\div2\div2=125$. Because 125 is even, I can't divide two any more. 125 is in A_0, and I divided 3 lots of 2s, so 1000 is in A_3.

How many of the numbers from 1 to 63 appear in the first sequence? The second?

Suppose we add 1 to the first sequence, the first sequence will be 2, 4, 6, 8, 10 .... and the question will be 'How many of the numbers from 1 to 64 appear in the first sequence?'
obviously, the answer is $64\div2=32$.
If we add 2 to the second sequence, the it will be 4, 8, 12, 16 .... and the question will be asking the number of numbers from 1-65, $65\div4=16$ rem 1. we ignore the rem, so the answer is 16.
In the third sequence, we is $67\div8=8$ rem 3, so the answer is 8.
In sequence 4, the answer is 4
In sequence 5, the answer is 2
.....

note: each answer is half the answer above, since each number is double in the row above.