1.

n	8
I%	4%
PV	-15000
PMT	0
FV	?
P/Y	1
C/Y	1

So FV = $20528.54

2.

n	4
I%	3
PV	20000
PMT	0
FV	?
P/Y	1
C/Y	4

So FV = -$22539.84. You have to pay back $22539.84

3.

n	25 x 12
I%	2.4
PV	500000
PMT	?
FV	0
P/Y	12
C/Y	1

PMT = -2211.49. The monthly payments are $2211.49

4.

n	?

I%	2.1
PV	-100000
PMT	1200
FV	0
P/Y	12
C/Y	1

n = 90.08. So 90 months, or 7 years and 6 months. (At that point, the annuity will be worth $96.66 and so no further full payments could be taken)

5. Anna:

n	5 x 12
I%	2
PV	-1000
PMT	-100
FV	?
P/Y	12
C/Y	1

FV = 7405.97

Bhavna

n	5
I%	2
PV	-1000
PMT	-1200
FV	?
P/Y	1
C/Y	1

FV = 7348.93.

So Anna now has $57.04 more than Bhavna, even though they invested the same amount of money.

6. First five years.

n	5 x 12

I%	1.5
PV	-15000
PMT	-100
FV	?
P/Y	12
C/Y	1

So FV from first five years is 22384.37.
Next five years.

n	5 x 12
I%	1.5
PV	-22384.37
PMT	-200
FV	?
P/Y	12
C/Y	1

So FV overall is $36564.55

7.

    a.

n	20 x 12
I%	1.6
PV	400000
PMT	?
FV	0
P/Y	12
C/Y	1

So PMT = -1946.48. The monthly payments are $1946.48

    b. To find the value after three years:

n	3 x 12
I%	1.6

PV	400000
PMT	-1946.48
FV	?
P/Y	12
C/Y	1

So FV = -347787.77.

Now consider the final 17 years:

n	17 x 12
I%	2.8
PV	347787.77
PMT	?
FV	0
P/Y	12
C/Y	1

So PMT = -2138.67, so $2138.67 per month.

c. The total cost is 3 x 12 x 1946.48 + 17 x 12 x 2138.67 - 400000 = 106361.96.
The cost of borrowing the money is $106361.96.