Q1a

Excel function PMT is used in computing the monthly payments as presented in the table below

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Q1 |  |  |  |  |
|  | a. | 15 Years payment | |  |  |
|  |  | PMT | |  |  |
|  |  | Mortgage (Loan)amount | |  | 300000 |
|  |  | Interest rate (rate) | |  | 0.00375 |
|  |  | Periods | |  | 180 |
|  |  | Compounding periods per year | | | 12 |
|  |  | Monthly payment (PMT) | |  | $2,294.98 |
|  |  |  |  |  |  |

Q1b

In a thirty year period, computations are a indicated below

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | b. 30 years payment | |  |  |  |
|  |  | PMT (rate,nper,-pv) | |  |  |
|  |  | Loan amount | |  | 300000 |
|  |  | Interest rate (rate) | |  | 0.00375 |
|  |  | Periods (nper) | |  | 360 |
|  |  | Compounding periods per year | | | 12 |
|  |  | Monthly payment (pv) | |  | $1,520.06 |

Q1c

The total interest paid is computed by subtracting the principal from total payments as presented below

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | C. | Computation of total payments over the 15 years period | | |
|  |  | Monthly payments |  | $2,294.98 |
|  |  | Number of payments |  | 180 |
|  |  | Total payments |  | $413,096.38 |
|  |  | Less principal |  | 300000 |
|  |  | Total interest paid |  | $113,096.38 |

Q1d

Total interest paid is computed by subtracting the principal from total payments as indicated below

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Column1** | **Column2** | **Column3** | **Column4** | **Column5** | **Column6** |
|  | D. | Computation of total payments over the 30 years period | | | |
|  |  | Monthly payments | |  | $1,520.06 |
|  |  | Number of payments | |  | $360.00 |
|  |  | Total payments | |  | 547220.1346 |
|  |  | Less principal | |  | 300000 |
|  |  | Total interest paid | |  | 247220.1346 |

Q2a

Mortgage amount is computed using excel function PV as indicated below for the 15 years period

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Q2 | Mortgage (loan amount) | |  | $235,296.18 |
|  | a | Monthly payments | |  | 1800 |
|  |  | rate |  |  | 0.38% |
|  |  | number of payments | | | 180 |

Q2b

Mortgage amount is computed using excel function PV as indicated below for the 30 years period

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | b. | Mortgage (loan amount) | |  | $355,250.09 |
|  |  | Monthly payments | |  | 1800 |
|  |  | rate |  |  | 0.38% |
|  |  | number of payments | | | 360 |

Q3

Based on the above analyses, it is clear that the attractiveness of the duration of payment period is dependent on the ability of the borrower. People with high monthly income should opt for shorter duration of payments while those with low paying capability should seek longer payment period. Nevertheless, shorter periods are better among people with equal income levels as it attracts less interest.

Q4