**Year 12 General Mathematics - Loans**

**8C.5 Question 2 (Making lump-sum payments on a Home Loan) – calculations**

*Jason takes out a home loan of $220,000 at 5.9% p.a. interest compounded monthly over 20 years.*

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| **Question Section** | **Formula and calculations** | **Answer** |
| 1. Find the minimum monthly payment | N =20 x 12 = 240  I = 5.9  PV = 220000  **PMT = 0**  FV = 0  P/Y = 12  C/Y = 12 | **$1,563.48 per month** |
| 1. Calculate Jason’s outstanding debt after 5 years. | N =5 x 12 = 60  I = 5.9  PV = 220000  PMT = -1563.48  **FV = 0**  P/Y = 12  C/Y = 12 | **FV = $186,469.93**  The amount still left on the loan after 5 years.  *15 years left on the loan* |
| 1. After 5 years, Jason receives $20,000 from his grandmother’s will. He decides to use it as a lump-sum payment towards his home loan. 2. How much sooner will Jason repay his home loan? 3. How much interest will Jason save by making a lump-sum payment? | After the lump sum payment, the outstanding debt is:  **$186,469.93 - $20,000 =**  **$166,469.93**  **N = 0**  I = 5.9  PV = 166,469.93  PMT = -1563.48  FV = 0  P/Y = 12  C/Y = 12  Without Lump Sum payment  $1563.48 x 240 = $375,235.20  With Lump Sum Payment the loan is pain in 60 + 152 = 212 months  $1563.48 x 212 = $331,457.76  $375,235.20 - $331,457.76 | N = 151.13 or 152 payments  152/12 = 12.67  i.e. 2 years 4 months earlier  **= $43,777.44** |