

<p><b>(a)</b></p>	<p>Monthly rate <math>(1+i)^{12} = 1.18</math>  <math>1+i = \sqrt[12]{1.18}</math>  <math>i = 1.01388843 - 1</math>  <math>i = 0.01388843</math></p> <p>Value owing = <math>130000(1.01388843)^3</math>  <math>= 135,492.0625</math>  <math>= \text{€}135,492.06</math></p>	<p><b>Scale 10C (0, 3, 7, 10)</b>  <i>Low Partial Credit</i>  Any valid effort to find the monthly rate</p> <p><i>High Partial Credit</i></p> <ul style="list-style-type: none"> <li>• Sets up correct equation but error in solving</li> <li>• Error in equation but solves to end</li> </ul>
<p><b>(b)</b> <b>(i)</b></p>	<p>Value owing in June = <math>\text{€}135,492.06</math></p> $135,492.06 = A + \frac{A}{(1.01388843)} + \frac{A}{(1.01388843)^2} + \dots + \frac{A}{(1.01388843)^{53}}$ $\frac{A \left( 1 - \frac{1}{1.01388843^{54}} \right)}{1 - \frac{1}{1.01388843}} = 135,492.06$ $A = \frac{135,492.06 \left( 1 - \frac{1}{1.01388843} \right)}{1 - \frac{1}{1.01388843^{54}}} = 3534.031665$ $= \text{€}3534.03$	<p><b>Scale 15D (0, 6, 9, 12, 15)</b>  <i>Low Partial Credit</i>  Attempt at calculating value of car in June</p> <p><i>Mid Partial Credit</i>  Sets up geometric series correctly</p> <p><i>High Partial Credit</i>  Correct substitution into formula</p>
<p><b>(b)</b> <b>(ii)</b></p>	<p><math>3534.03(54) = \text{€}190,837.62</math></p>	<p><b>Scale 5B (0, 2,5)</b>  <i>Low Partial Credit</i>  Multiplication by 54</p>