

**AQA Computer Science A-Level**  
**4.12.2 Writing functional programs**  
Past Paper Mark Schemes

## Additional Specimen Paper 2

<b>08</b>	<b>2</b>	<b>Mark is for AO2 (apply)</b>  36;	<b>1</b>
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<b>08</b>	<b>3</b>	<b>Marks are for AO1 (understanding)</b>  Reduces a list of values to a single value; By applying a combining function;	<b>2</b>
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## June 2017 Paper 2

<b>06</b>	<b>2</b>	<p><b>All marks AO2 (apply)</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Function Call</th> <th style="text-align: left;">Result</th> </tr> </thead> <tbody> <tr> <td>map square a</td> <td>[1, 9, 25]</td> </tr> <tr> <td>filter (&lt;10) b</td> <td>[1, 5]</td> </tr> <tr> <td>fold (+) 0 c</td> <td>18</td> </tr> </tbody> </table> <p><b>1 mark</b> for each correct response in the <b>Result</b> column.  <b>I.</b> Missing brackets this time or use of incorrect type of brackets  <b>I.</b> If returned values are assigned to new lists eg <math>x = [1, 9, 25]</math>  <b>A.</b> [5,1] for row 2 this time</p>	Function Call	Result	map square a	[1, 9, 25]	filter (<10) b	[1, 5]	fold (+) 0 c	18	<b>3</b>
Function Call	Result										
map square a	[1, 9, 25]										
filter (<10) b	[1, 5]										
fold (+) 0 c	18										
<b>06</b>	<b>3</b>	<p><b>Mark is for AO1 (knowledge)</b></p> <p>A function that takes a function as an argument // returns a function as a result // takes a function as an argument and returns a function as a result;  <b>A.</b> "Parameter", "Input" for "Argument"  <b>NE.</b> A function that uses another function  <b>R.</b> Explanations that are specifically of the map function</p>	<b>1</b>								

## Specimen Paper 2

<b>12</b>	<b>1</b>	<p><b>Marks is for AO1 (understanding)</b></p> <table border="1" style="margin-left: 20px;"><tr><td style="padding: 2px;">Head</td><td style="padding: 2px;">1</td></tr><tr><td style="padding: 2px;">Tail</td><td style="padding: 2px;">[ 2, 3, 4 ]</td></tr></table> <p><b>1 mark</b> for both head and tail correct. I. if brackets are missing in tail.</p>	Head	1	Tail	[ 2, 3, 4 ]	<b>1</b>
Head	1						
Tail	[ 2, 3, 4 ]						
<b>12</b>	<b>2</b>	<p><b>Mark is for AO2 (apply)</b></p> <p>[ 2, 4, 6, 8 ];</p> <p>I. if brackets are missing in tail.</p>	<b>1</b>				
<b>12</b>	<b>3</b>	<p><b>All marks AO1 (understanding)</b></p> <p><b>1 mark:</b> Explaining that map applies the function double to each list element;</p> <p><b>1 mark:</b> Explaining that map applies double to the head of the list;</p> <p><b>1 mark:</b> and then a recursive call is made on the tail of the list;</p>	<b>3</b>				