

Example Admissions test for University of Birmingham School of Electronic, Electrical and Systems Engineering for 2014/15.

You will be given 10 minutes to complete the test. Calculators are not permitted.

Section A	
1	<p>Calculate the number of hours in a week</p>
2	<p>Express the following fraction as simply as possible</p> $\frac{25}{15}$
3	<p>For the following equation, find y if $x=2$</p> $y = 2x^2 + 3x + 1$
4	<p>Reduce the number of terms in the following algebraic expression as far as possible</p> $x(x - 1) + 3x - x^2$

5	<p>Multiply the two expressions in brackets together.</p> $(x + 2)(x - 1)$
6	<p>Solve the following equation for x</p> $6 + 3x = 2 - x$
7	<p>Using any method, solve the following quadratic equation</p> $2x^2 + 7x + 3 = 0$
8	<p>Cancel as many terms as possible to produce a simpler algebraic fraction.</p> $\frac{6x^2 + 2x}{4x^3 + 2x^2 + 8x}$

Section B

9

Differentiate the following expression

$$y = 3x^2 + 6x + 2$$

10

Differentiate the following expression

$$y = \frac{x^3}{\sqrt{x}}$$

11

Carry out the following indefinite integral

$$\int (x^3 + x^2 + 1)dx$$

12

Carry out the following indefinite integral

$$\int \frac{x^3 + 6}{\sqrt{x}} dx$$

