

# Solomon Practice Paper

## Core Mathematics 3D

Time allowed: 90 minutes

Centre: [www.CasperYC.club](http://www.CasperYC.club)

Name:

Teacher:

Question	Points	Score
1	5	
2	6	
3	8	
4	9	
5	10	
6	11	
7	12	
8	14	
Total:	75	

How I can achieve better:

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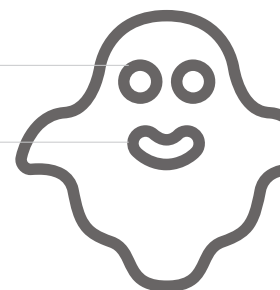
3. (a) Given that  $y = \ln(x)$ , find expressions in terms of  $y$  for [4]
- $\log_2(x)$ ,
  - $\ln\left(\frac{x^2}{e}\right)$ .

- (b) Hence, or otherwise, solve the equation [4]

$$\log_2(x) = 4 - \ln\left(\frac{x^2}{e}\right),$$

giving your answer to 2 decimal places.

Total: 8







5.

$$f(x) = 3 - \frac{x-1}{x-3} + \frac{x+11}{2x^2-5x-3}, \quad x \in \mathbb{R}, x < -1.$$

(a) Show that

$$f(x) = \frac{4x-1}{2x+1}.$$

(b) Find an equation for the tangent to the curve  $y = f(x)$  at the point where  $x = -2$ , giving your answer in the form  $ax + by + c = 0$ , where  $a, b$  and  $c$  are integers.

Total: 10

