

Solomon Practice Paper

Core Mathematics 1B

Time allowed: 90 minutes

Centre: www.CasperYC.club

Name:

Teacher:

Question	Points	Score
1	3	
2	4	
3	5	
4	6	
5	6	
6	6	
7	10	
8	11	
9	11	
10	13	
Total:	75	

How I can achieve better:

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5.

$$f(x) = 4x - 3x^2 - x^3.$$

- (a) Fully factorise $4x - 3x^2 - x^3$. [3]
- (b) Sketch the curve $y = f(x)$, showing the coordinates of any points of intersection with the coordinate axes. [3]

Total: 6



7. (a) Given that $y = 2^x$, find expressions in terms of y for [4]
- 2^{x+2}
 - 2^{3-x}

- (b) Show that using the substitution $y = 2^x$, the equation [2]

$$2^{x+2} + 2^{3-x} = 33$$

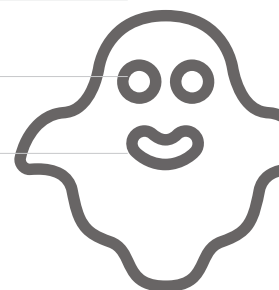
can be rewritten as

$$4y^2 - 33y + 8 = 0.$$

- (c) Hence solve the equation [4]

$$2^{x+2} + 2^{3-x} = 33.$$

Total: 10



8. Given that

$$y = 2x^{\frac{3}{2}} - 1$$

(a) find $\frac{d^2y}{dx^2}$,

[3]

(b) show that

[2]

$$4x^2 \frac{d^2y}{dx^2} - 3y = k,$$

where k is an integer to be found,

(c) find

[6]

$$\int y^2 dx.$$

Total: 11

