

Solomon Practice Paper

Core Mathematics 4L

Time allowed: 90 minutes

Centre: www.CasperYC.club

Name:

Teacher:

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

How I can achieve better:

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-
-



Last updated:

June 17, 2025

$$\frac{dn}{dt} = e^{0.5t} - 5, \quad t \geq 0.$$

- Total: 8

[8]

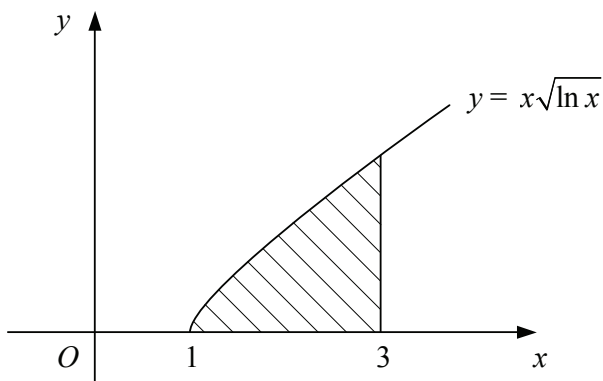
Find an equation for the normal to the curve at the point with coordinates $(1, 4)$, giving your answer in the form $ax + by + c = 0$, where a, b and c are integers.

[4]

(b) Evaluate

[6]

4. Figure shows the curve with equation $y = x\sqrt{\ln(x)}$, $x \geq 1$.



The shaded region is bounded by the curve, the x -axis and the line $x = 3$.

- (a) Using the trapezium rule with two intervals of equal width, estimate the area of the shaded region. [4]

The shaded region is rotated through 360° about the x -axis.

- (b) Find the exact volume of the solid formed. [7]

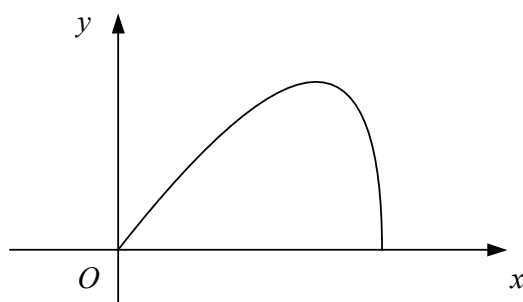
Total: 11

$$f(x) = \frac{5 - 8x}{(1 + 2x)(1 - x)^2}.$$

- Total: 12

6. Figure shows the curve with parametric equations

$$x = t + \sin(t), \quad \text{and} \quad y = \sin(t), \quad 0 \leq t \leq \pi.$$



(a) Find $\frac{dy}{dx}$ in terms of t . [3]

(b) Find, in exact form, the coordinates of the point where the tangent to the curve is parallel to the x -axis. [3]

(c) Show that the region bounded by the curve and the x -axis has area 2. [6]

Total: 12

- (a) Find a vector equation for l_1 .

[2]

where μ is a scalar parameter.

- [4]

- [2]

(d) Find the position vector of C .

[6]

Total: 14

