

Solomon Practice Paper

Pure Mathematics 5G

Time allowed: 90 minutes

Centre: www.CasperYC.club

Name:

Teacher:

Question	Points	Score
1	7	
2	7	
3	8	
4	9	
5	12	
6	14	
7	18	
Total:	75	

How I can achieve better:

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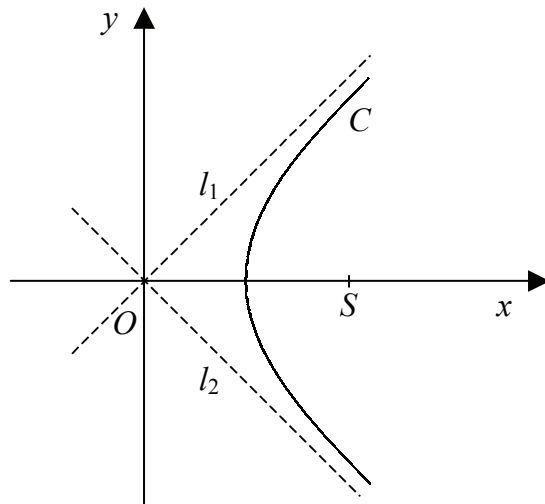
Last updated: December 24, 2025



7. Figure shows the curve C which is part of the hyperbola with parametric equations

$$x = a \cosh(t), \quad \text{and} \quad y = 2a \sinh(t),$$

where a is a positive constant and $x \geq a$.



The lines l_1 and l_2 are asymptotes to C .

(a) Show that the radius of curvature of C at its vertex is $4a$. [6]

(b) Show that an equation of the tangent to C at the point $P(\cosh(p), 2a \sinh(p))$ is [4]

$$2x \cosh(p) - y \sinh(p) = 2a.$$

The tangent to the curve C at P meets the asymptote l_1 at Q .

Given that QS is parallel to the y -axis, where S is the focus,

(c) show that $p = \frac{1}{2} \ln(5)$. [8]

Total: 18

