Finding Equations of Tangents

Example

Find the equation of the **tangent** to the curve when .

Find the equation of the **normal** to the curve when .

Test your Understanding

Find the equation of the **normal** to the curve when .

Extension

*1. [STEP I 2005 Q2]*

The point has coordinates and the point has coordinates , where and are non-zero and . The curve is given by . The point is the intersection of the tangent to at and the tangent to at . Show that has coordinates .

The point is the intersection of the normal to at and the normal to at . If and are such that lies on the line , show that has coordinates , and that the quadrilateral is a rectangle.

2. *STEP I 2012 Q4]*

The curve has equation .

The tangents to at the distinct points and , where and are positive, intersect at and the normal to at these points intersect at . Show that is the point

In the case , find the coordinates of . Show (in this case) that and lie on the line and are such that the product of their distances from the origin is constant.

Ex 12F page269