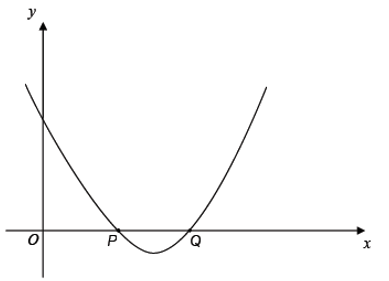
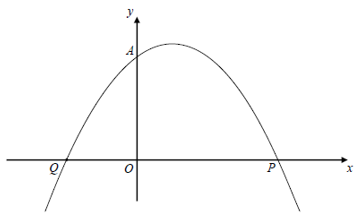
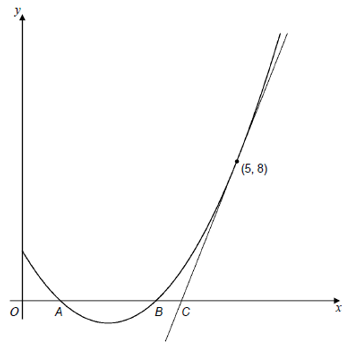
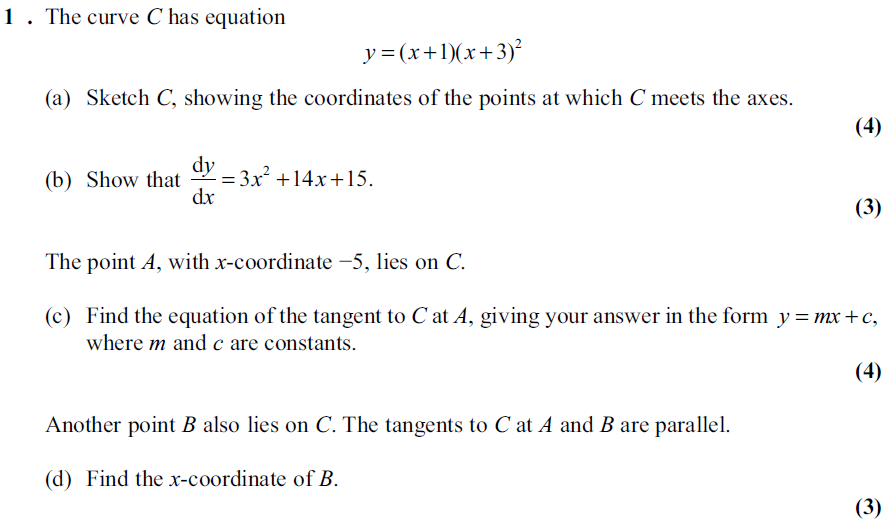
**IGCSEFM/C1 Tangent/Normal Questions**

**IGCSE Questions**

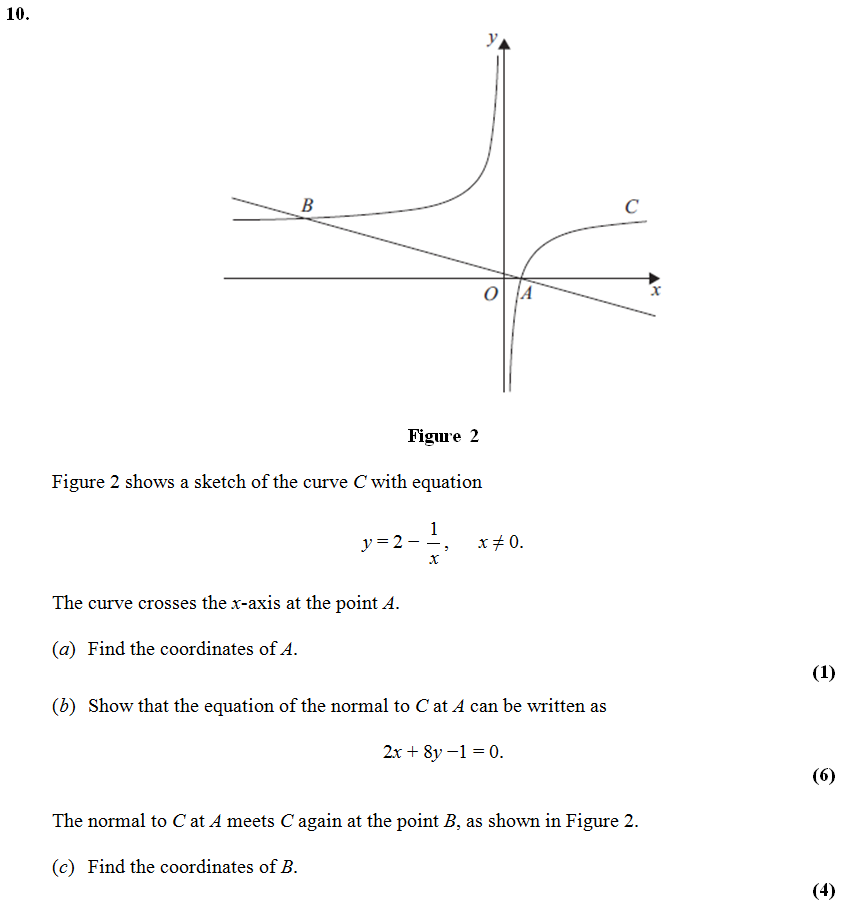
1. [IGCSEFM June 2012 Paper 1 Q8] A curve has equation   
   (a) When , show that the value of is -7.  
   (b) Work out the equation of the tangent to the curve at the point where .
2. [IGCSEFM June 2013 Paper Q8] A curve has equation   
   (a) Work out .  
   (b) Work out the equation of the tangent to the curve at the point where   
   Give your answer in the form
3. [IGCSEFM Set Paper 1 Q11] Show that the tangents to the curve at and are parallel.
4. [IGCSEFM Set 1 Paper 2 Q17] Work out the equation of the normal to the curve at the point (1, 2). Give your answer in the form .
5. [IGCSEFM Set 2 Paper 1 Q15] The graph shows a sketch of . The curve intersects the -axis at and .  
     
   Show that the tangents at and are perpendicular.
6. [IGCSEFM Set 4 Paper 2 Q20] A sketch of the curve is shown.  
    and are points on the curve.  
     
   (a) Write down the coordinates of point .  
   (b) Show that the normal to the curve at intersects the curve again at .
7. [IGCSEFM Specimen Paper 2 Q22] The diagram shows the graph of   
   The curve cuts the -axis at the points and .  
   The tangent to the curve at the point (5,8) cuts the -axis at the point .  
     
   Show that .

**C1 Questions**

**[Jan 2013 Q11]**

**[June 2011 Q10]**

**[Jan 2012 Q10]**



**[Jan 2011 Q11] 11.** The curve *C* has equation

*y* =  –  +  + 30, *x* > 0.

(*a*) Find .

**(4)**

(*b*) Show that the point *P*(4, –8) lies on *C*.

**(2)**

(*c*) Find an equation of the normal to *C* at the point *P*, giving your answer in the form *ax*+ *by*+ *c* = 0 , where a, b and c are integers.

**(6)**