

## STEP II, 2004, Q3

- 3 The curve  $C$  has equation

$$y = x(x + 1)(x - 2)^4.$$

Show that the gradient of  $C$  is  $(x - 2)^3(6x^2 + x - 2)$  and find the coordinates of all the stationary points. Determine the nature of each stationary point and sketch  $C$ .

In separate diagrams draw sketches of the curves whose equations are:

(i)  $y^2 = x(x + 1)(x - 2)^4$  ;

(ii)  $y = x^2(x^2 + 1)(x^2 - 2)^4$  .

In each case, you should pay particular attention to the points where the curve meets the  $x$  axis.



# NextStepMaths.com

To view mark schemes, fully worked solutions and examiner's comments, and for more details about tutoring and other services offered, go to [NextStepMaths.com](https://www.NextStepMaths.com)



# NextStepMaths.com

To view mark schemes, fully worked solutions and examiner's comments, and for more details about tutoring and other services offered, go to [NextStepMaths.com](https://www.NextStepMaths.com)