



The diagram shows a shaded region bounded by the  $y$ -axis, the line  $y = -1$  and the part of the curve  $y = x^2 + 4x + 3$  for which  $x \geq -2$ .

- (i) Express  $y = x^2 + 4x + 3$  in the form  $y = (x + a)^2 + b$ , where  $a$  and  $b$  are constants. Hence, for  $x \geq -2$ , express  $x$  in terms of  $y$ . [4]

[illegible]

