

LCOL Algebra 17 — Generating Quadratic Equations From The Curve

LCOL · Algebra | Tutorial questions & answers | gktuition.ie

ON THE LCOL PAST PAPERS · Examined in 2 question-parts, 2018-2021 (main sittings) | 2021: P1 Q3(b) · 2018: P1 Q5(b)

How to use this sheet: these are the exact questions worked in this tutorial, in order. Try each one yourself first — the time it is posed in the video is shown, so you can pause before Paul solves it. Final answers are at the back; the full method is in the video.

Worked examples (in the video)

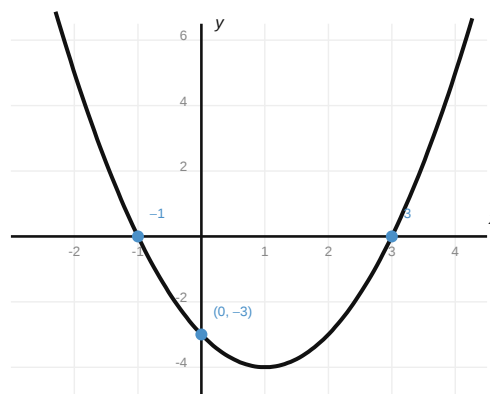
Example 1. A U-shape crosses the x-axis at -4 and -3 and the y-axis at 12 . Generate its equation (roots $\rightarrow$ factors $\rightarrow$ multiply). (*worked 01:51-05:21*).

Example 2. An n-shape crosses at -3 and 2 , y-axis at 6 . Generate its equation (check the shape/y-crossing — flip if the signs are wrong). (*worked 05:49-09:12*).

Questions

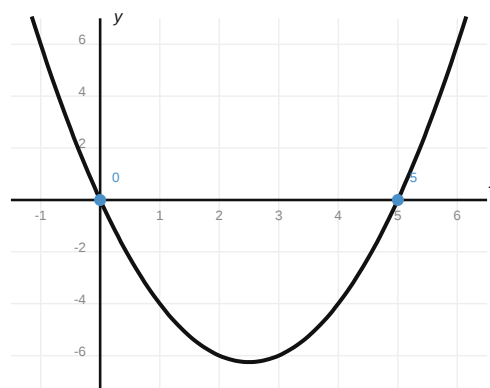
(a). U-shape, crosses -1 and 3 , y-axis -3 — generate the equation.

Posed at 10:23 in the tutorial.



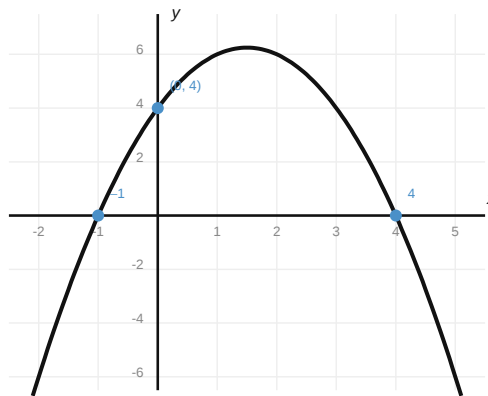
(b). U-shape through the origin and 5 — generate the equation.

Posed at 11:34 in the tutorial.



(c). n-shape, crosses -1 and 4 , y-axis $+4$ — generate the equation.

Posed at 13:21 in the tutorial.



Answers

Final answers only — pause the video and check yourself; the worked method is in the tutorial.

Example 1. $(x + 4)(x + 3) \rightarrow x^2 + 7x + 12 = 0$

Example 2. $x^2 + x - 6 = 0$ fails the check $\rightarrow x(-1) \rightarrow -x^2 - x + 6 = 0$

(a). $(x + 1)(x - 3) \rightarrow x^2 - 2x - 3 = 0$ (no flip needed)

(b). $x(x - 5) \rightarrow x^2 - 5x = 0$

(c). $x^2 - 3x - 4 = 0 \rightarrow \text{flip} \rightarrow -x^2 + 3x + 4 = 0$

Overlaps with these tutorials

LCOL Algebra 16 — Sketching Quadratic Curves. The same roots/shape/y-intercept facts — this lesson runs them backwards. Do Algebra 16 first.

LCOL Algebra 14 — Solving Quadratic Equations. Turning roots into factors is solving in reverse.