

Quadratic Graphs (parabolas) are curves and NOT (not) straight lines

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Given a is 3, b is 4 and c is -2 find:

- (1) $2c$
- (2) $c^2 + b$
- (3) $-b^2 + 2b - a$



Given a is 3, b is 4 and c is -2 find:

- (4) $2c$
- (5) $c^2 + b$
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Given a is 3, b is 4 and c is -2 find:

- (7) $2c$
- (8) $c^2 + b$
- (9) $-b^2 + 2b - a$



(a) Complete the table for $y = x^2 - 3x - 10$

x	-2	-1	0	1	2	3	4	5
y								

- (b) Sketch the curve
- (c) Use the graph to state the values of x when $y = 0$
- (d) Verify these results by **factoring and solving** the equation $y = x^2 - 3x - 10$

(a) Complete the table for $y = x^2 - x - 12$

x	-4	-3	-2	-1	0	1	2	3	4	5
y										

- (b) Sketch the curve
- (c) Use the graph to state the values of x when $y = 0$
- (d) Verify these results by **factoring and solving** the equation $x^2 - x - 12 = 0$
- (e) By setting $x = 0$ in the original equation find the y intercept (value of y when $x = 0$). (Check the graph represents this)

(a) Complete the table for $y = -x^2 - 2x + 8$

x	-4	-3	-2	-1	0	1	2	3	4	5
y										

- (b) Sketch the curve
- (c) Use the graph to state the values of x when $y = 0$
- (d) Verify these results using the **quadratic equation** $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ to solve $-x^2 - 2x + 8 = 0$

(e) By setting $x = 0$ in the original equation find the y intercept (value of y when $x = 0$). (Check the graph represents this)

(a) Complete the table for $y = 3x^2 - 2x - 8$

x	-5	-4	-3	-2	-1	0	1	2	3
y									

- (b) Sketch the curve
- (c) State the values of x when $y = 0$
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Plotting Quadratic Graphs (Parabolas)

All Quadratic graphs are curves. If the curve 'stops' just continue the sketch.
A parabola is symmetric. Task 1 below requires you to plot quadratic graphs.

(a) Complete the table for $y = x^2 - 2x + 1$

x	-4	-3	-2	-1	0	1	2	3	4	5
y										

- (b) Sketch the curve
 (c) Use the graph to state the value(s) of x when y = 0
 (d) Use the graph to state the value of y when x = 0
 (e) Draw the line y = 2x on the same graph

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- (b) Sketch the curve
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 (e) Draw the line y = x+1 on the same graph

(a) Complete the table for $y = 2x^2 - 2x - 4$

X	-4	-3	-2	-1	0	1	2	3	4	5
Y										

- (b) Sketch the curve
 (c) Use the graph to state the value(s) of x when y = 0
 (d) Use the graph to state the value of y when x = 0
 (e) Draw the line y = -2x+1 on the same graph

(a) Complete the table for $y = (x - 1)^2$

X	-4	-3	-2	-1	0	1	2	3	4	5
Y										

- (b) Sketch the curve
 (c) Use the graph to state the value(s) of x when y = 0
 (d) Use the graph to state the value of y when x = 0
 (e) Draw the line y = 3x-1 on the same graph

(a) Complete the table for $y = x^2 - x - 6$

X	-4	-3	-2	-1	0	1	2	3	4	5
Y										

- (b) Sketch the curve
 (c) Use the graph to state the value(s) of x when y = 0
 (d) Use the graph to state the value of y when x = 0
 (e) Draw the line y = 1+ 4x on the same graph

Task two: Solve all of the quadratic equations above (set them equal to zero) and check they match your solutions

Task three: Give an estimate to the points of intersection of the equation of the straight line and the curves above.

Task four: Use algebra to solve the equations above simultaneously

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