

Solving Quadratics Graphically

Video 267c on Corbettmaths

Examples

Workout



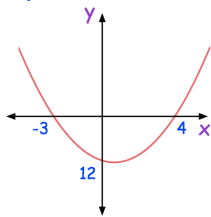
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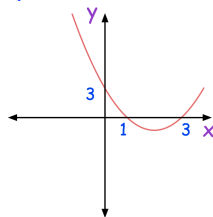
Question 1: Using the graphs below, solve each equation.

$$y = x^2 - x - 12$$



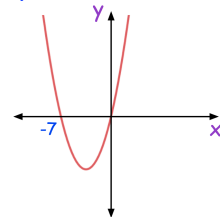
(a) Solve $x^2 - x - 12 = 0$

$$y = x^2 - 4x + 3$$



(b) Solve $x^2 - 4x + 3 = 0$

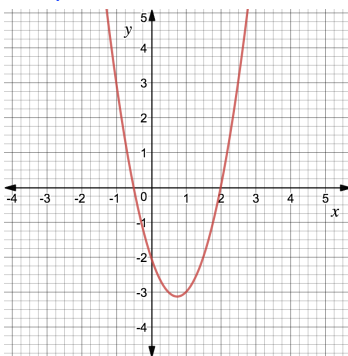
$$y = x^2 + 7x$$



(c) Solve $x^2 + 7x = 0$

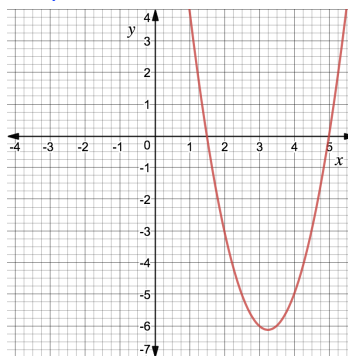
Question 2: Using the graphs below, solve each equation

$$y = 2x^2 - 3x - 2$$



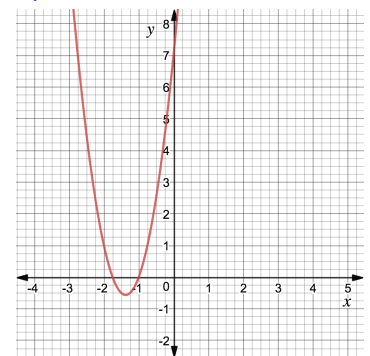
(a) Solve $2x^2 - 3x - 2 = 0$

$$y = 2x^2 - 13x + 15$$



(b) Solve $2x^2 - 13x + 15 = 0$

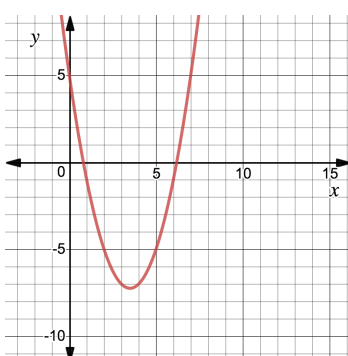
$$y = 4x^2 + 11x + 7$$



(c) Solve $4x^2 + 11x + 7 = 0$

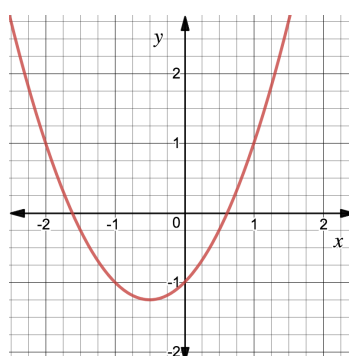
Question 3: Using the graphs, find estimates of the solutions to the following equations

$$y = x^2 - 7x + 5$$



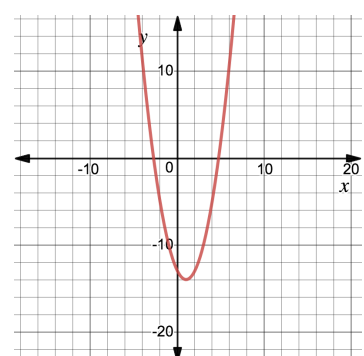
(a) $x^2 - 7x + 5 = 0$

$$y = x^2 + x - 1$$



(b) $x^2 + x - 1 = 0$

$$y = x^2 - 2x - 13$$



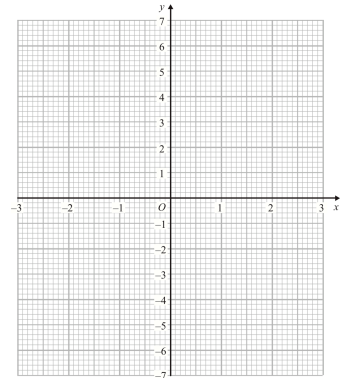
(c) $x^2 - 2x - 13 = 0$

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Question 4: (a) Complete the table of values of $y = x^2 - x - 5$

x	-3	-2	-1	0	1	2	3
y			-3				1



(b) On a copy of the grid, draw the graph of $y = x^2 - x - 5$ for the value of x from -3 to 3

(c) Use your graph to find estimates of the solutions to the equation $x^2 - x - 5 = 0$

Question 5: Solve each of the following equations graphically

(a) $x^2 - 3x - 3 = 0$

(b) $x^2 + 8x + 5 = 0$

(c) $x^2 - 2x - 1 = 0$

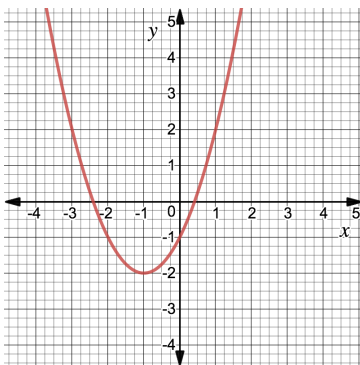
(d) $x^2 - 5x - 8 = 0$

(e) $x^2 + 4x - 10 = 0$

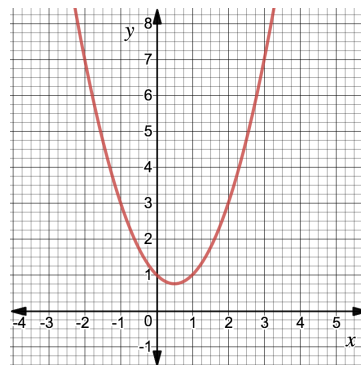
(f) $2x^2 + 3x - 6 = 0$

Question 6: Using the graphs below, solve each equation

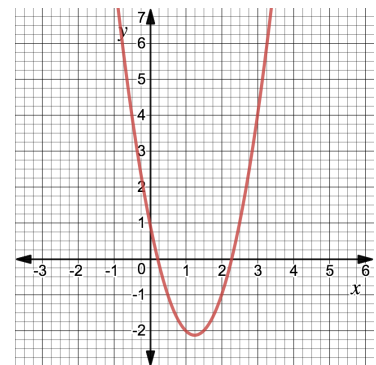
$y = x^2 + 2x - 1$



$y = x^2 - x + 1$



$y = 2x^2 - 5x + 1$



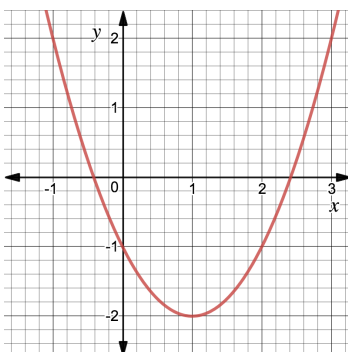
(a) Solve $x^2 + 2x - 1 = 2$

(b) Solve $x^2 - x + 1 = 7$

(c) Solve $2x^2 - 5x + 1 = 1$

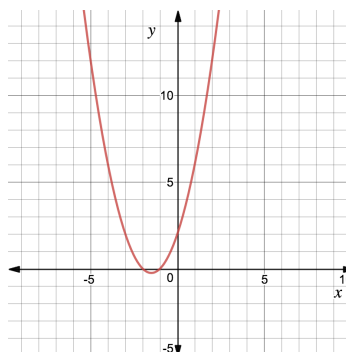
Question 7: Using the graphs, find estimates of the solutions to the following equations

$y = x^2 - 2x - 1$



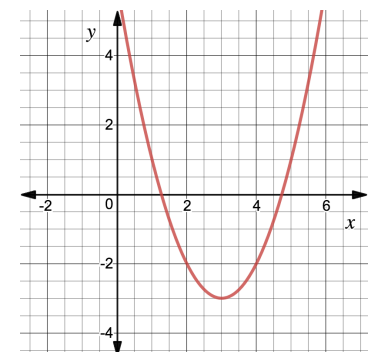
(a) $x^2 - 2x - 1 = 1$

$y = x^2 + 3x + 2$



(b) $x^2 + 3x + 2 = 11$

$y = x^2 - 6x + 6$



(c) $x^2 - 6x + 6 = -1$

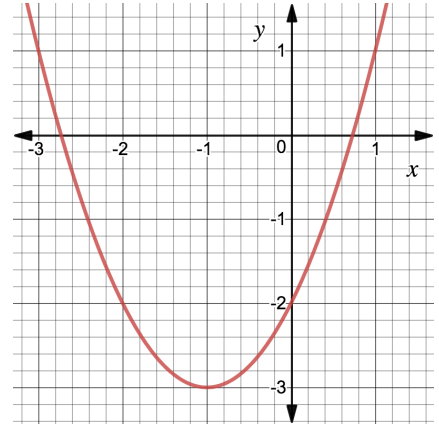
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Apply

Question 1: The graph of $y = f(x)$ is drawn on the grid.

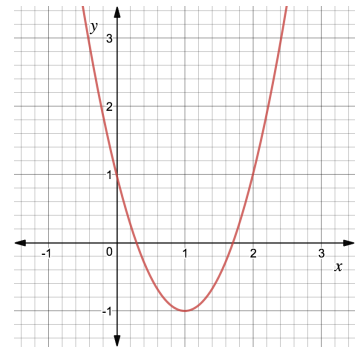
- Write down estimates for the roots of $f(x) = 0$
- Use the graph to find an estimates for the roots of $f(x) = -1$
- Write down the coordinates of the turning point of the graph



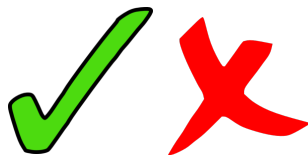
Question 2: The grid below shows the graph of $y = 2x^2 - 4x + 1$

The graph of $2x^2 - 4x + 1 = k$ has exactly one solution.

Use the graph to find the value of k



Answers



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