Quadratic Matching

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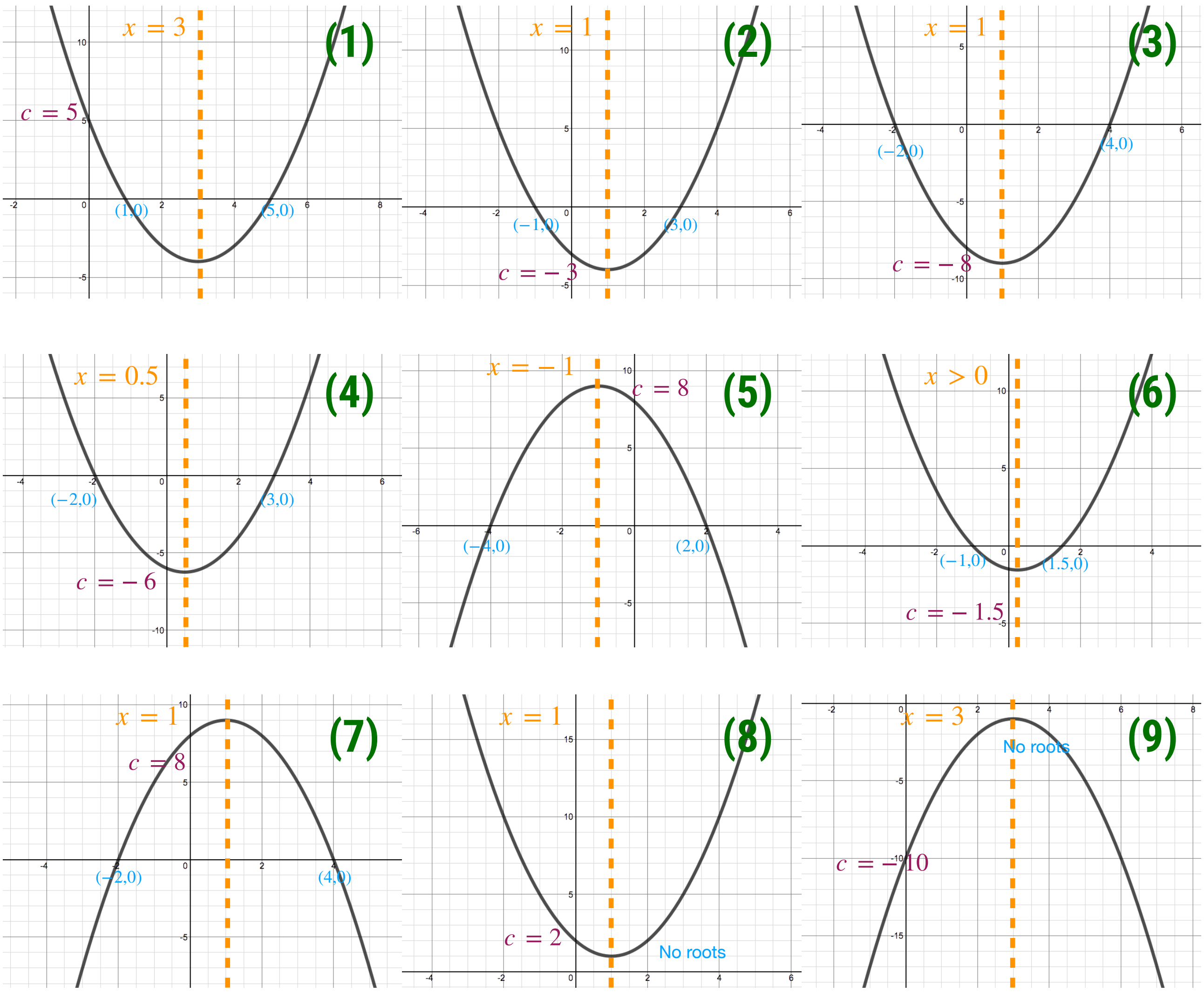
For the sake of convenience, we can eyeball the following: a) the line of symmetry, b) both the roots, if they exist and and c) y intercept for each of the 9 graphs.

Here are all of them in one frame:



My strategy to match all the graphs was this; I saw that there were few statements that applied to more than one graphs, such as the line of symmetry is $x = 3$ or the vertex lies at the line $x = 1$. So I picked statements that seemed very specific that specified only one graph. Progressively, a lot of the graphs would get ruled out and I moved forward with this technique. This would ensure that there is a right match for all the graphs and no repetitions.

(b) This function has a non-integer root.

There is only one graph that has non-integer root; graph 6

(d) The y values for this graph are all greater than 0 (that is, $y>0$).

Only graph 8 has all values of y as positive.

(f) The constant term of this function is −8 (that is, $c=-8$).

The constant term means the y-intercept. Only graph 3 corresponds to this.

(g) The sum of the roots of this function are 6.

Graph 1 has the roots as 1 and 5, hence the sum is 6.

(a) The line of symmetry of this graph is $x=3$.

Now that graph 1 is ruled out, the only graph remaining with line of symmetry $x = 3$ is graph 9

(c) The line of symmetry of this graph is $x=k$, where $k<0$.

Only graph 5 has the line of symmetry less than 0

(h) The points (0,8) and (2,8) both lie on this curve.

The meaning of (0,8) is that the y intercept is 8. Now that graph 5 is also ruled out, only graph 7 satisfies this.

(e) The vertex of this graph lies on the line $x=1$.

We are only left with graph 2 and 4. The vertex will always lie on the line of symmetry. Hence the line of symmetry should be $x=1$, which can be seen in graph 2

(i) The sum of the roots of this function is an odd number (that is, b is odd).

Only graph 4 remains. We can still verify that the sum of roots is $-2 + 3 = 1$, an odd number.