Mathematics

Sketching quadratic graphs I

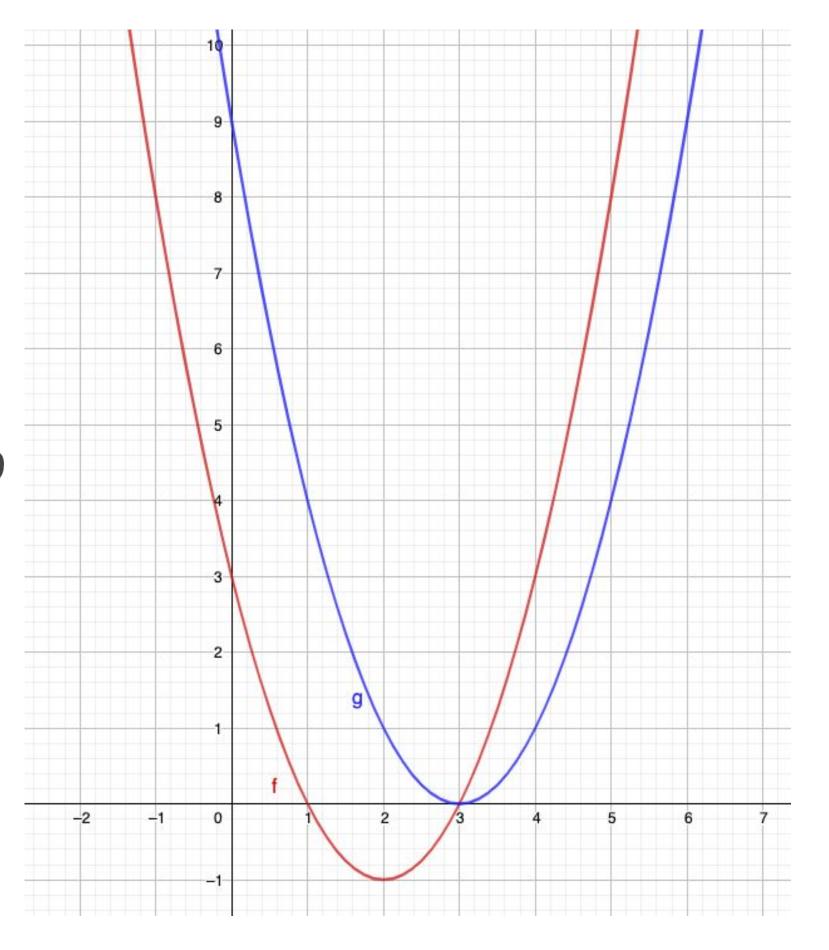Mr Coward

Try this

1) Solve:
a) $x^2 - 4x + 3 = 0$
b) $x^2 - 6x + 9 = 0$

2) Which graphs shows
$y = x^2 - 4x + 3$ and $y = x^2 - 6x + 9$

Explain how you know.
Can you find three reasons?

Independent task

1) Complete the table

Equation	Shape	Roots	Y-intercept
1. $y = x^2 + 9x + 20$			
2. $y = x^2 + 7x + 10$			
3. $y = x^2 - 6x - 27$			
4. $y = x^2 - 12x + 27$			
5. $y = x^2 - 12x + 36$			
6. $y = -x^2 + 11x - 10$			
7. $y = -x^2 - 15x - 50$			
8. $y = -x^2 - 2x + 24$			

Explore

A graph has a line of symmetry which helps find its turning points.

What do you notice about the x coordinate of the turning point and the roots?

Can you use this relationship to find the x coordinate of turning points of:

a) $y = x^2 - 6x + 8$ b) $y = x^2 + 6x + 8$

c) $y = x^2 - 9x + 20$ d) $y = x^2 + 3x - 10$

How could you now find the y coordinate?