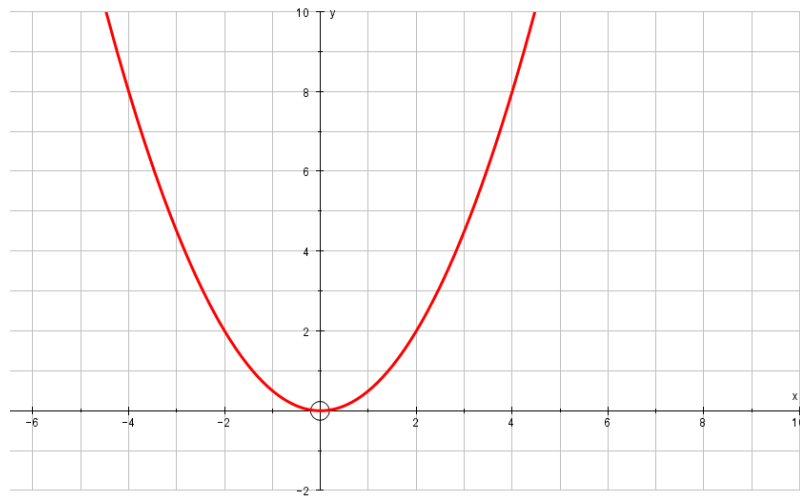


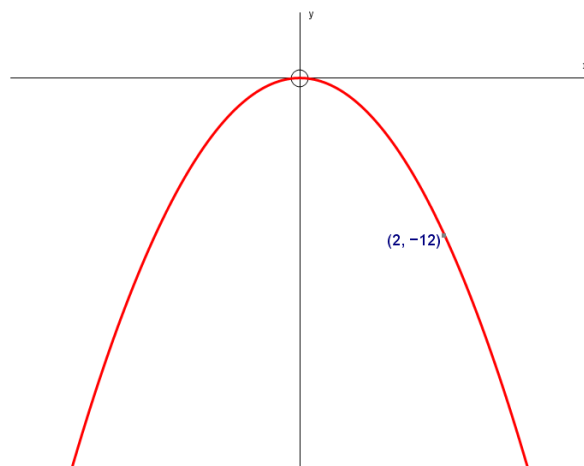
Please attempt the following questions in preparation for the online session on 2nd March.

Quadratic equations & graphs

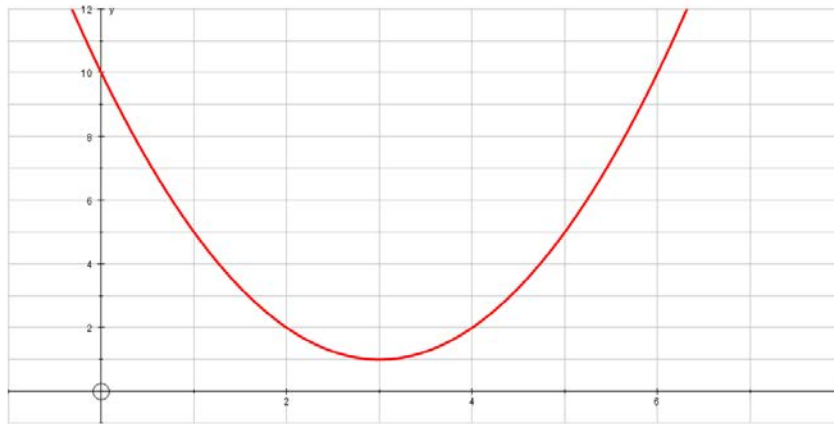
Q1. What is the equation of the graph below?



Q2. The diagram below shows part of the graph of $y = ax^2$.
What is the value of a ?



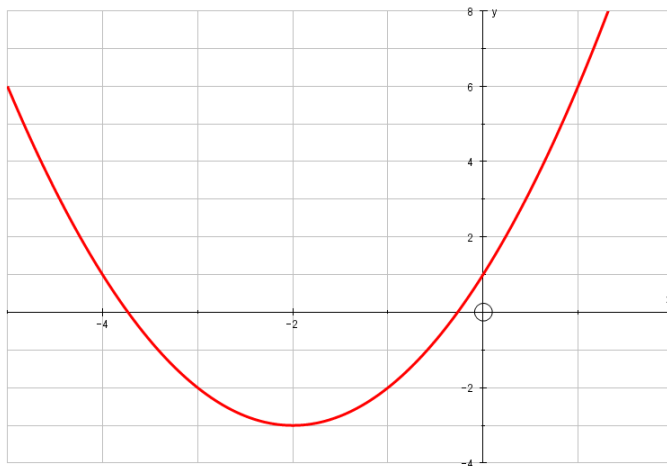
Q3. The equation of the graph below takes the form $y = (x + a)^2 + b$.



What is the equation of the graph?

Q4. The diagram below shows part of the graph of $y = (x + a)^2 + b$.

What is the equation of the graph?



Q5. Sketch the graph with the equation $y = x^2 + 3x - 10$.

Q6. Sketch the graph with the equation $y = (x - 3)^2 + 1$.

Q7. Solve $3x^2 + 7x - 5 = 0$.

Q8. Solve $2x^2 - 5x - 1 = 0$.

There are two solutions identify the positive solution.

Q9. Determine the nature of the roots of the quadratic

$$y = 3x^2 - 5x + 2.$$

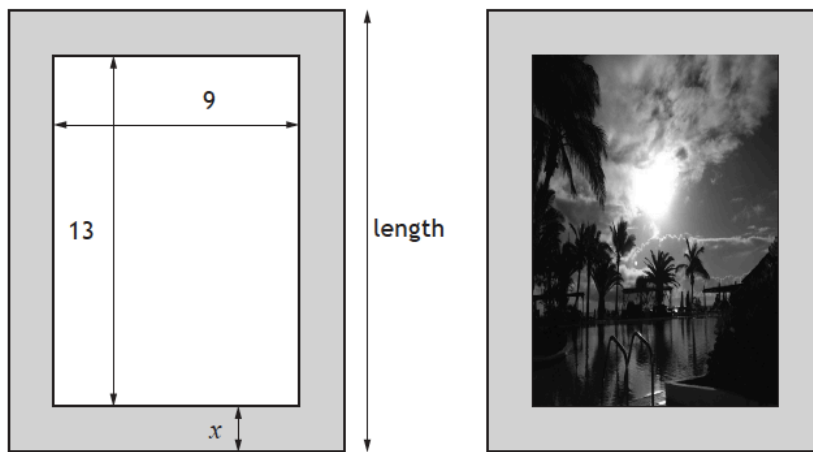
Q10. Determine the nature of the roots of the function

$$f(x) = 7x^2 + 5x + 1.$$

Q11. A photo 9cm by 13cm is glued onto a piece of card.

The area of the card is 270cm^2 .

There is a border $x\text{cm}$ on all sides of the photo.



(a) Write down an expression for the length of the card.

(b) Hence show that $4x^2 + 44x - 153 = 0$

(c) Calculate x , the width of the border.