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National 5 Mathematics

Exam Questions by Topic

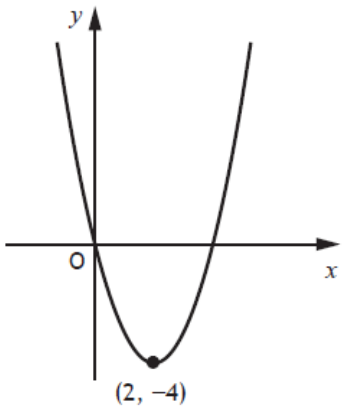
Parabolas

Step-by-step worked solutions to these questions in the N5 Maths Study Pack

2015 N5 Past Paper P1, Q7

1. The graph below shows part of the parabola with equation of the form

$$y = (x + a)^2 + b$$



The minimum turning point (2,-4) is shown in the diagram.

(a) State the values of

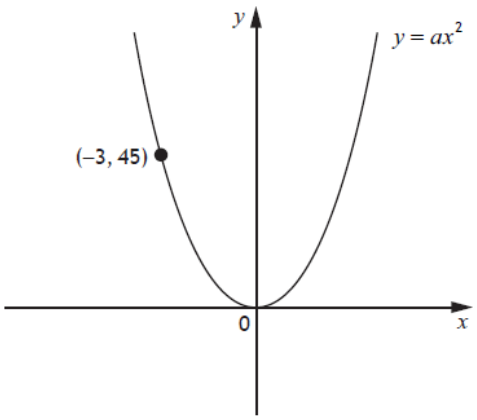
(i) a (1 mark)

(ii) b (1 mark)

(b) Write down the equation of the axis of symmetry of the graph (1 mark)

2014 N5 Past Paper P1, Q7

2. The diagram below show part of the graph of

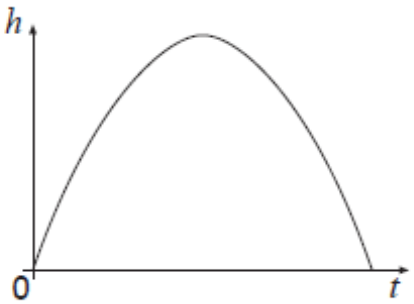


Find the value of a (2 marks)

2014 N5 Past Paper P1, Q13

3. The diagram below shows the height of a small rocket which is fired into the air. The height, h meters, of the rocket after t seconds is given by

$$h(t) = 16t - t^2$$



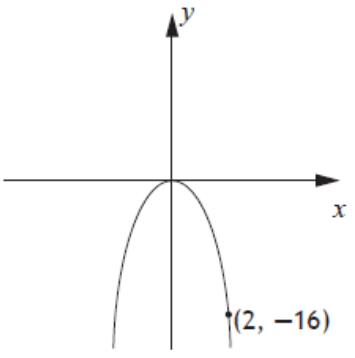
(a) After how many seconds will the rocket first be at a height of 60 metres? (4 marks)

(b) Will the rocket reach a height of 70 metres?

Justify your answer. (3 marks)

2013 N5 Specimen P2, Q4

4. The graph with equation $y = kx^2$

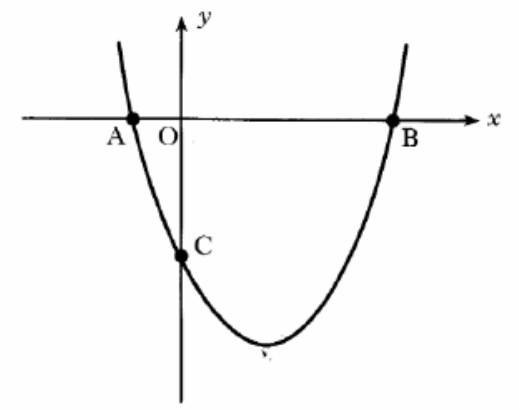


The point $(2, -16)$ lies on the graph.

Determine the value of k (2 marks)

N5 Practice Paper A, P1, Q7

5.



The equation of the parabola in the diagram above is $y = (x-2)^2 - 9$

(a) State the coordinates of the minimum turning point of the parabola.

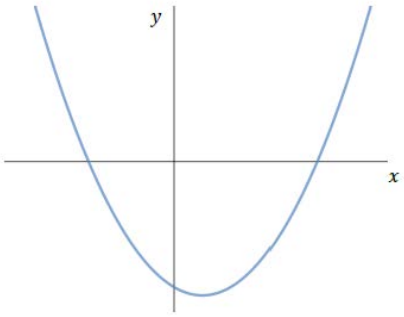
(2 marks)

(b) Find the coordinates of C. (2 marks)

(c) A is the point $(-1, 0)$. State the coordinates of B. (1 mark)

N5 Practice Paper B, P1, Q13

6.



The equation of the parabola in the above diagram is

$$y = (x-1)^2 - 16$$

(a) State the coordinates of the minimum turning point of the parabola

(2 marks)

(b) State the equation of the axis of symmetry of the parabola. (1 marks)