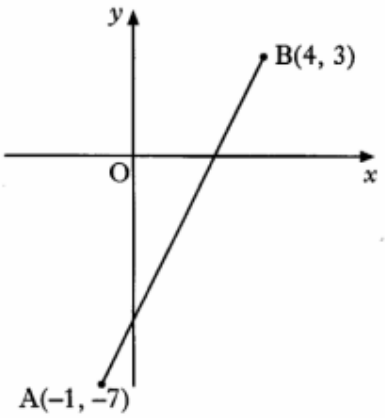
S5/6 National 5 Homework 14 – Questions from Past Papers

1 From "no calculator" paper

Evaluate $5.04 + 8.4 \div 7.$ 2

2 In the diagram below, A is the point $(-1,-7)$ and B is the point $(4,3)$.



(a) Find the gradient of the line AB. 1

(b) AB cuts the y-axis at the point $(0,-5)$.
Write down the equation of the line AB. 2

3 (a) Evaluate $8^{\frac{2}{3}}$ 2

(b) Simplify $\dfrac{\sqrt{24}}{\sqrt{2}}$ 2

(c) Simplify $\dfrac{2x+2}{(x+1)^2}$ 2

4 Change the subject of the formula

$y = ax^3 + c$ to x. 3

5

Find the roots of the equation

$$2x^2 + 4x - 9 = 0.$$

Give your answers correct to one decimal place. 4

6

Determine the nature of the roots of the equation

$$(x - 2)^2 - 5x = 0.$$ 4

7

Solve algebraically the equation

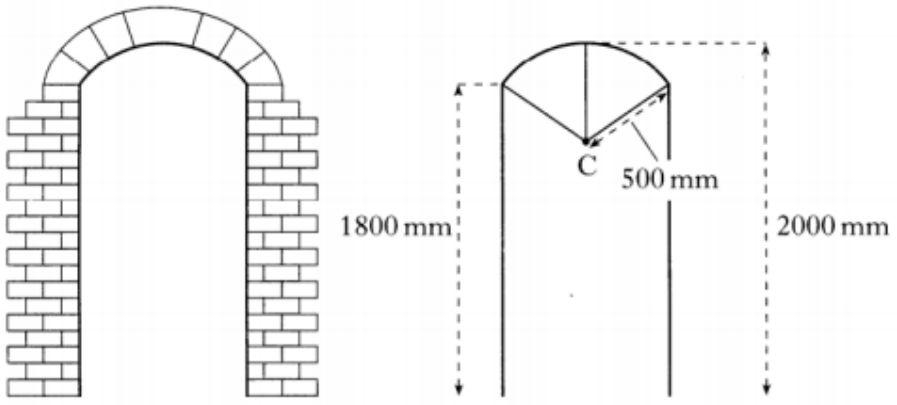
$$4 \sin x^\circ + 1 = -2 \qquad 0 \leq x < 360.$$ 3

8

The curved part of a doorway is an arc of a circle with radius 500 millimetres and centre C.

The height of the doorway to the top of the arc is 2000 millimetres.

The vertical edge of the doorway is 1800 millimetres.



Calculate the width of the doorway. 5