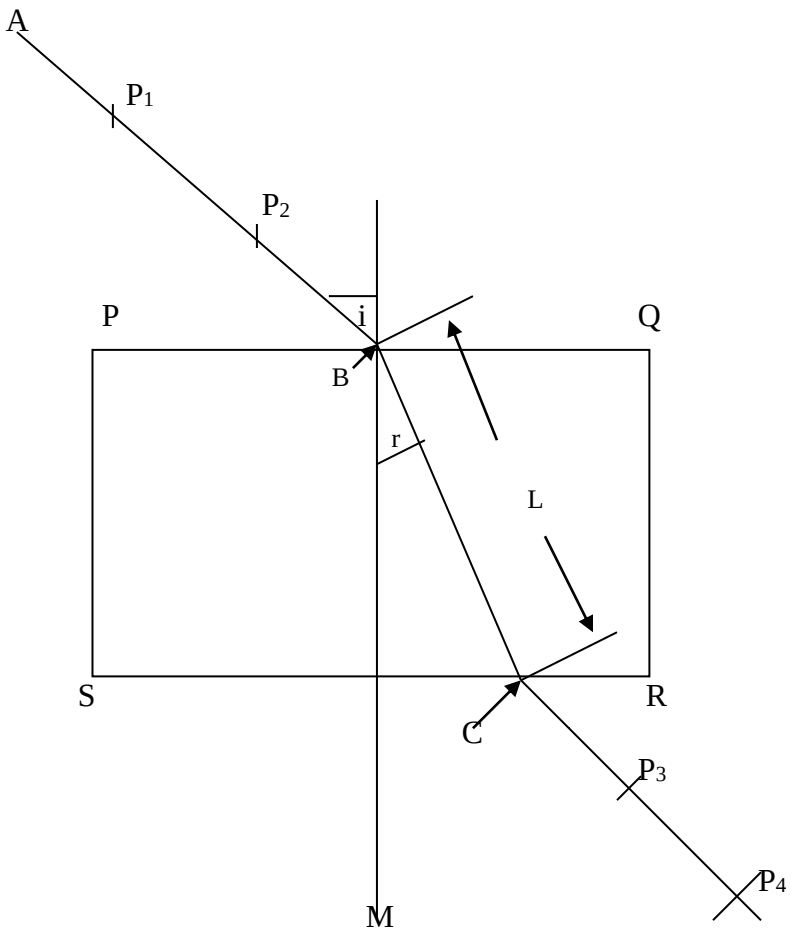
MENGO SENIOR SCHOOL
S6 PHYSICS III EXAM
END OF 1ST TERM 2002
TIME: 1½ HOURS.

In this experiment you will determine the refractive index n, and the width W, of the glass block provided



a) Place a glass block on a white sheet of paper.

b) Trace the outline of the block.

c) Remove the glass block and label it's outline as PQRS.

d) Draw a normal NM at B 3cm from P

e) Draw a line AB such that angle i = 10° as shown in the diagram.

f) Replace the glass block on it's outline

g) Fix pins vertically P, and P_2 along AB.

h) Looking through side SR, fix pins P_3 and P_4 such that they appear to be with the images of pins P_1 and P_2.

i) Remove the glass block and the pins.

j) Draw a line through P_3 and P_4 to meet SR at C.

k) Join B to C.

l) Measure and record angle r and distance L

m) Repeat procedures (e) to (L) for values:
i = 20° , 30° , 40° , 50° and 60°

n) Tabulate your results in order table including values of :
Sin i, Sin r, Sin^2 i and L^{-2}.

o) Plot a graph of L^{-2} against Sin^2 i.

p) Find the slope, S, of the graph.

q) Find the intercept C on the L^{-2} axis

r) Calculate the width W of the glass block from the expression.

$$W = \sqrt{\frac{1}{C}}$$