Physics
Leaving Certificate
Higher Level

Past Exam Questions on
Reflection and Mirrors

Q3 Section A 2013

3. The following is part of a student's report on an experiment to measure the focal length of a concave mirror.

> "I started with the object 6 cm from the mirror but couldn't get an image to form on the screen. I moved the object back a few centimetres and tried again, but I couldn't get an image to form on the screen until the object was 24 cm from the mirror. From then on I moved the object back 8 cm each time and measured the corresponding image distances. I wrote my results in the table."

u/cm	24.0	32.0	40.0	48.0
v/cm	72.5	40.3	33.0	27.9

Draw a labelled diagram of the apparatus used. (9)

Give two precautions that should be taken when measuring the image distance. (6)

Explain why the student was unable to form an image on the screen when the object was close to the mirror. (6)

Use all of the data in the table to calculate a value for the focal length of the mirror. (15)

Describe how the student could have found an approximate value for the focal length of the mirror before starting the experiment. (4)

Q5 Part (e) Section B 2009

(*e*) Draw a ray diagram to show the formation of an image in a convex mirror. (7)

Q3 Section A 2007

3. In an experiment to measure the focal length of a concave mirror, an approximate value for the focal length was found. The image distance *v* was then found for a range of values of the object distance *u*. The following data was recorded.

u/cm	15.0	20.0	25.0	30.0	35.0	40.0
v/cm	60.5	30.0	23.0	20.5	18.0	16.5

How was an approximate value for the focal length found?
What was the advantage of finding the approximate value for the focal length? (10)

Describe, with the aid of a labelled diagram, how the position of the image was found. (12)

Calculate the focal length of the concave mirror by drawing a suitable graph based on the recorded data. (18)

Q5 Part (d) Section B 2005

(d) An object O is placed 30 cm in front of a concave mirror of focal length 10 cm.
How far from the mirror is the image formed? (7)