The Mirror Equation

1. A candle is placed 15 cm from the vertex of a concave mirror that has a focal length of 10 cm.

a) Locate the position of the image by means of (i) a ray diagram

(ii) the mirror equation.

b) Find the magnification of the image.

c) Describe the characteristics of the image.

1. A baby mouse 1.2 cm high is standing 4.0 cm from a converging mirror having a focal length of 300 cm.

a) Locate the position of the image by means of (i) a ray diagram

(ii) the mirror equation.

b) Determine the height of its image.

1. When a butterfly of body length 4.2 cm is 10 cm from a concave mirror, its image is 15 cm behind the mirror. Calculate

a) the focal length of the mirror.

b) the magnification.

c) the length of the image.

1. Where must a peanut be placed in order to produce a real image 15 cm from a mirror of focal length 10 cm? What is the magnification?
2. A 60 cm tall red rose is placed 40 cm from a large convex mirror of focal length 20 cm.

a) Locate the position of the image by means of (i) a ray diagram

(ii) the mirror equation.

b) Find the magnification of the image.

c) What is the height of the image?

d) Describe the characteristics of the image.

1. How far would an object need to be placed from a mirror of focal length 10.0 cm if it is to produce an image which is 20.0 cm BEHIND the mirror?
2. A mirror produces an upright, virtual image of an object. What type of mirror would this be? (hint: there is more than one possible answer here)