

Department of Natural Sciences  
Clayton College & State University

April 9, 2002

Physics 1112 - Quiz 9b

Name SOLUTION

1. An object placed 100 cm from a concave spherical mirror produces a real image 75.0 cm from the mirror.

a. What is the focal length of the mirror?

$$\frac{1}{100 \text{ cm}} + \frac{1}{75.0 \text{ cm}} = \frac{1}{f}$$

$$0.01 \text{ cm}^{-1} + 0.0133 \text{ cm}^{-1} = \frac{1}{f}$$

$$f = \underline{\underline{42.8 \text{ cm}}}$$

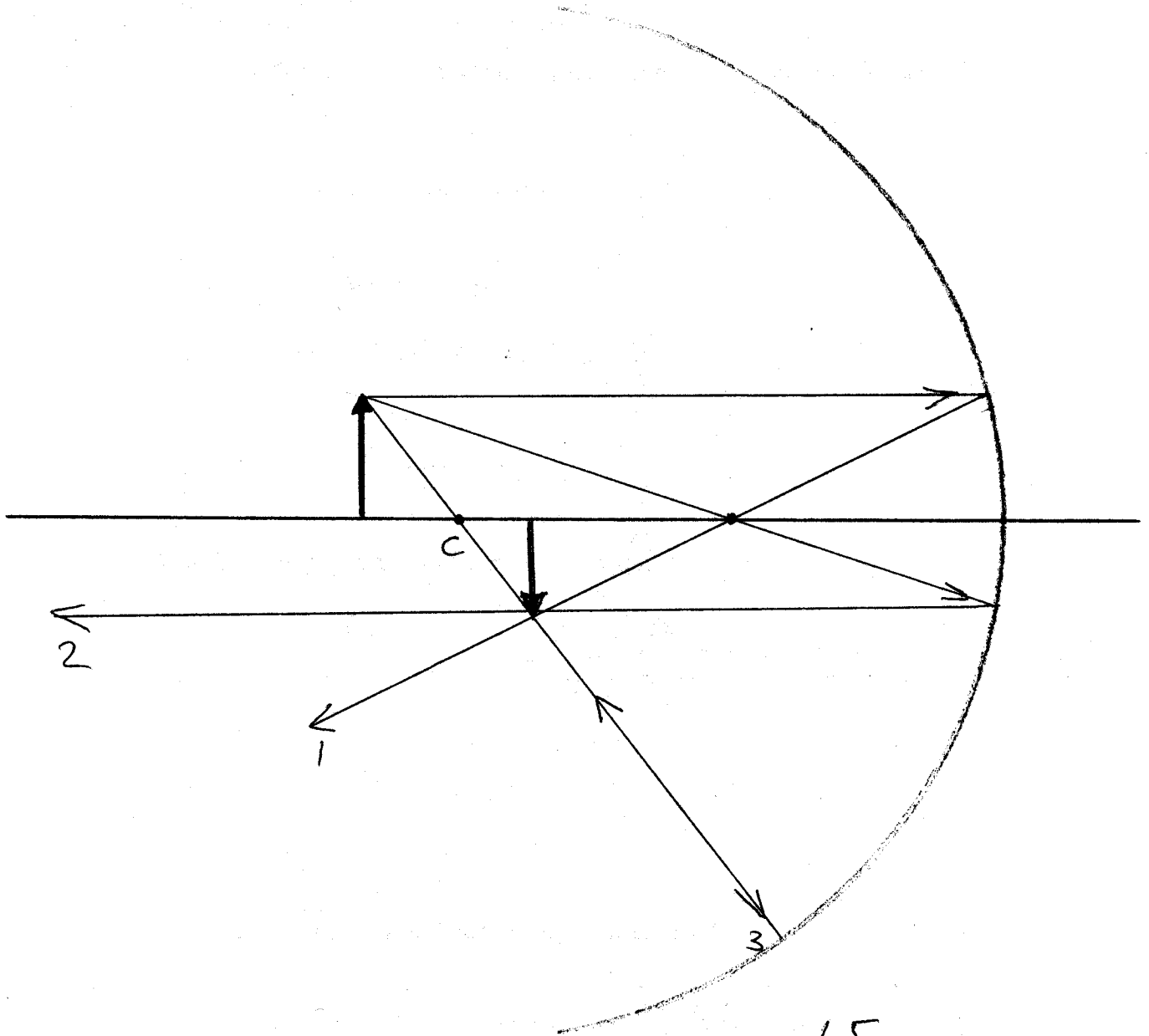
b. What is the lateral magnification of the mirror?

$$M = -\frac{q}{p} = -\frac{75.0 \text{ cm}}{100 \text{ cm}} = \underline{\underline{-0.75}}$$

c. Is the image upright or inverted, enlarged or reduced?

inverted and reduced

- d. Draw a ray diagram of the situation and find the magnification of the mirror from the diagram.



$$M = \frac{1.5}{1.9} = \underline{\underline{0.79}}$$