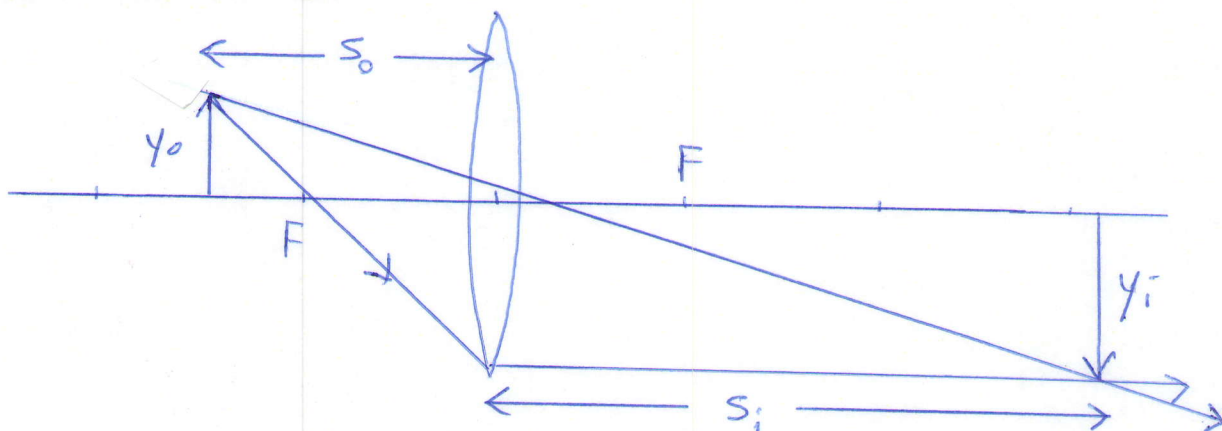


Quiz 8

Name: _____ Student Number: _____

1. (6 marks) Where must a 3 cm high object be placed in front of a convex lens having a focal length of 10 cm, for the image to be real and twice as large as the object? Draw a ray diagram to support your algebra.



$$\text{Now } \frac{s_i}{s_o} = \frac{y_i}{y_o} = 2$$

$$\therefore s_i = 2s_o \quad (1)$$

$$\text{Also } \frac{1}{s_o} + \frac{1}{s_i} = \frac{1}{f}$$

$$\text{Using (1)} \Rightarrow \frac{1}{s_o} + \frac{1}{2s_o} = \frac{1}{f}$$

$$\frac{3}{2s_o} = \frac{1}{f}$$

$$\therefore s_o = \frac{3}{2}f = \frac{3}{2} \times 10 = 15 \text{ cm.}$$

2. a) (2 marks) What is farsightedness? Explain using diagrams of light entering the eye.

See assignment solutions.

- b) (2 marks) How can glasses correct this problem?

Total = 10 marks