(i) By similar triangles:

$$\frac{D}{F_i} = \frac{S}{x}, \text{ and } \frac{d}{F_o} = \frac{S}{F_o - (F_i + x)}$$

Eliminating S, we have:

$$\frac{d}{F_o} = \frac{Dx}{F_i \times [F_o - (F_i + x)]}$$

Rearranging we have:

$$x = \frac{dF_i \times (F_o - F_i)}{DF_o + dF_i} = \frac{100 \times 990 \times (1000 - 990)}{(200 \times 1000) + (100 \times 900)} = 3.3mm$$

Answer: x = 3.3 mm

(ii) Now:

$$s = \frac{xD}{F} = \frac{3.3 \times 200}{990} = 0.67mm$$

Answer: s = 0.67 mm