

Name _____

Light illumination (I) varies inversely as the square of distance (d) from the object.

- a) Write a generic equation showing the relationship between I and d

$$I = \frac{k}{d^2}$$

- b) If
- $I = 100$
- when
- $d = 4$
- , find the proportionality constant,
- k
- , and write a specific equation.

$$100 = \frac{k}{4^2} = \frac{k}{16}$$

$$k = 1600$$

- c) When
- $d = 10$
- , what is the illumination?

$$I = \frac{1600}{d^2}$$

$$I = \frac{1600}{10^2} = \frac{1600}{100} = 16$$