

INVERSE SQUARE TABLES FOR GRAVITATION

$$\frac{F_{\text{New}}}{F_{\text{Original}}} = \frac{\cancel{G} (a \cancel{m_1}) (b \cancel{m_2})}{(\cancel{c} r)^2} = \frac{a b}{c^2}$$

attached to m_1 attached to m_2
 ↓ ↓
 a b
 ↓
 c^2
 ↑
 attached to r

$$\frac{g_{\text{New}}}{g_{\text{Original}}} = \frac{\cancel{G} (b \cancel{m_2})}{(\cancel{c} r)^2} = \frac{b}{c^2}$$

$$m_1 \quad \frac{1}{10} m_2 \quad \frac{1}{4} r$$

$$\frac{(1)\left(\frac{1}{10}\right)}{\left(\frac{1}{4}\right)^2} = \frac{16}{10} = \frac{8}{5} F$$
$$\frac{8}{5} g$$

$$\frac{\frac{a}{b}}{\frac{c}{d}} = \frac{ad}{bc}$$

$$4m_1 \quad 5m_2 \quad 5r$$

$$\frac{(4)(5)}{(5^2)} = \frac{4}{5} F$$

$$\frac{5}{(5^2)} = \frac{1}{5} g$$

$$2m_1, 3m_2 \quad 48g$$

$$48 = \frac{(3)}{c^2}$$

$$\sqrt{c^2} = \frac{3}{48} = \sqrt{\frac{1}{16}}$$

$$c = \frac{1}{4}$$

$$\frac{(2)(3)}{\left(\frac{1}{4}\right)^2} = (6)(16) = 96F$$