G21TELK **Kepler Telescope**

For infinite distance x1o of object of first lens and "at infinity configuration" for magnifier.

1.Lens $f1 := 30$

$x1o := -10^{10}$

$$x1i := \frac{1}{\left(\frac{1}{f1}\right) + \frac{1}{x1o}}$$

$x1i = 30$ That is at the focus of the first lens.

2.Magnifier Lens $f2 := 6$

Assume that we have for the length a of the telescope

$a := f1 + f2$

$a = 36$

As a result we have the virtual image of the second lens at negative infinity

$x2i := -10^{10}$

$$x2o := \frac{-1}{\frac{1}{f2} - \frac{1}{x2i}} \qquad x2o = -6$$

3. Magnification

$$m1 := \frac{x1i}{x1o} \qquad m1 = -3 \times 10^{-9}$$

$$m2 := \frac{x2i}{x2o} \qquad m2 = 1.667 \times 10^{9}$$

Product m1*m2 $m1 \cdot m2 = -5$

We get the same value for x1i/x2o $\frac{x1i}{x2o} = -5$

that is f1/f2 $\frac{f1}{f2} = 5$