

## Re: Optics

**Source:** <http://sci.tech-archive.net/Archive/sci.physics/2005-01/10066.html>

---

**From:** John C. Polasek ([jpolasek\\_at\\_cfl.rr.com](mailto:jpolasek_at_cfl.rr.com))

**Date:** 01/26/05

Date: Wed, 26 Jan 2005 14:30:59 -0500

On Wed, 26 Jan 2005 08:48:17 GMT, "CWatters"

<[colin.watters@pandoraBOX.be](mailto:colin.watters@pandoraBOX.be)> wrote:

>

> "Kevin" <[kschaaps@rebootstation.dyndns.org](mailto:kschaaps@rebootstation.dyndns.org)> wrote in message

> [news:41f6ef54\\$0\\$85557\\$cd19a363@news.wanadoo.nl...](mailto:news:41f6ef54$0$85557$cd19a363@news.wanadoo.nl...)

>

>> *When PersonX looks at the Moon the diameter of the moon appears: 10cm.*

>

> *That's only because in your minds eye you are holding a rule at about arms*

> *length. Google "similar triangles" for the maths. However because the*

> *position of this "rule" isn't well defined it's better think of it as*

> *filling a "percentage of the field of view in degrees". Look down at your*

> *feet. the earth fills 100% of your field of view. Look up at the moon and it*

> *fill say 5% of your field of view. A telescopic lens makes things look*

> *bigger by effectively "converting" a narrow field of view to your eye's wide*

> *field of view.*

The sun and moon both subtend 1/2 degree or about 1 part in 120 (2000 miles out of 240,000 miles).

At arms length, 20", the moon should be  $20/120 = 1/6$  in or 4 cm not 10.

To test for the angle, hold an index card at arms length when moon is on the horizon, and crease it and mark it. Then when it's much higher, retest it. The marks should match.

John Polasek