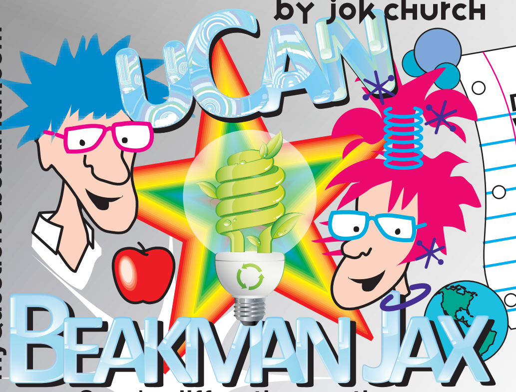
myQuestion@beakman.com

by jok church



Dear Jax,
Why do bright lights on TV always have 4 beams, and why do they have corners?
Richard Cook
Vestal, New York

Beakman or Jax
1130 Walnut Street
Kansas City, MO 64106
Questions, name & address

Google: diffraction grating

Dear Richard,

They are not always 4 beams. It all depends on how many blades the camera's iris has.

Eyes and cameras both need to let more or less light in.

Humans do it with the flexible ring – the iris – around the clear hole in the center of our eyes.

Most cameras have irises, too. But a machine cannot get smaller organically the way our eyes can. When there's lots of light, both kinds of irises get smaller to block light. Eyes stay round, while cameras do not.

Jax Place

Many photographers and TV producers like the twirly twinkling of those starlike lens flares.

There are special filters one can mount in front of a camera lens to make star-flares on purpose.

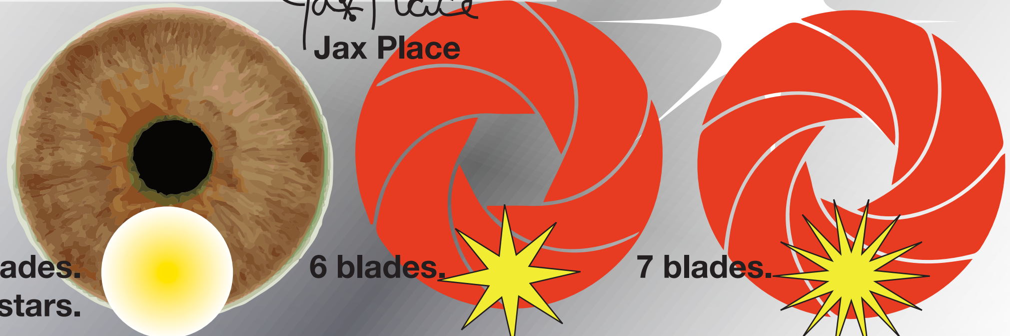
There are also computer filters in photo-processing programs like Photoshop™ that can make fake flares.

Regular readers of this comic strip probably know that there are two things one can do to light: bounce it and bend it (by reflecting it or refracting it).

Even though lenses are round, the blades that open and close a camera's iris are curved blades, usually made of metal. When they close down, as in bright light, they lose their roundness, and get corners.

Light will refract differently at the corners of these shapes, and that will make the star-shaped lens flare that you asked about.

Our eyes stay round, so when our irises are closed down tight, we'll see a glow, or a shape with no corners.



P.S. from Beakman: Irises with odd numbers of blades have stars with twice the number of points as the number of blades. Even numbers are symmetrical and points match blades.