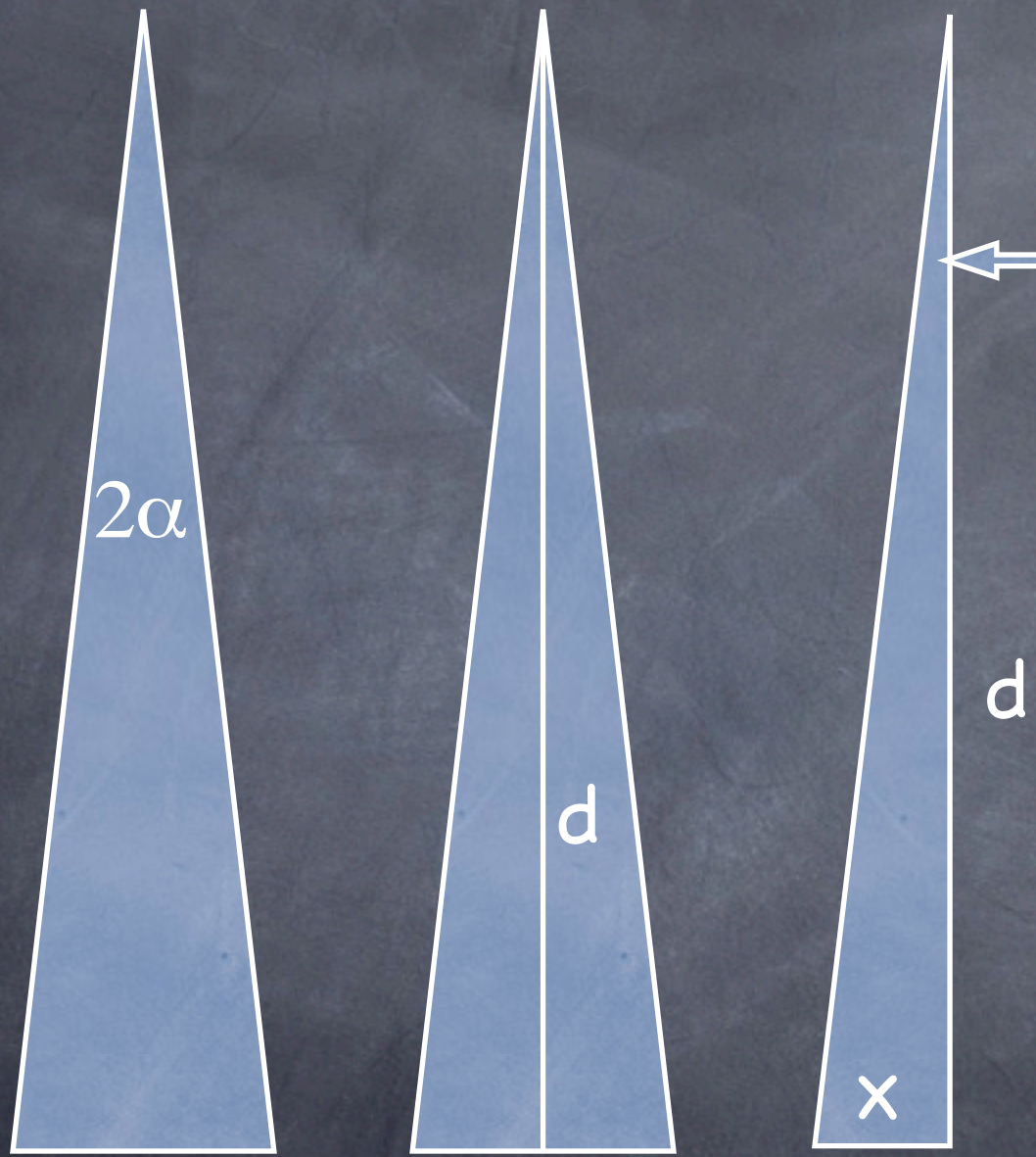


Angle is α

You have a right triangle. Use tangent to solve.

$\tan(\alpha) = x/d$

Baseline (B)
1000 km

x = B/2
500 km

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$\alpha = 1\,\text{minute}$

$\text{baseline} = 1000\,\text{km}$

First convert $\alpha$ to radians. Note that radians are unitless.

$$\alpha_R = \alpha \frac{1\,\text{degree}}{60\,\text{minute}} \frac{\pi}{180\,\text{degree}}$$

$\alpha_R = \frac{1}{10800}\pi$ Substitute

$\alpha_R = 0.00029089$ Calculate

Now substituting into the tangent equation gives:

$$\tan(\alpha_R) = \frac{\frac{\text{baseline}}{2}}{\text{distance}}$$

$\tan(\alpha_R) = 500\frac{\text{km}}{\text{distance}}$ Substitute

$\tan(0.00029089) = 500\frac{\text{km}}{\text{distance}}$ Substitute

$0.00029089 = 500\frac{\text{km}}{\text{distance}}$ Calculate

$\text{distance} = 1.7189 \times 10^6\,\text{km}$ Isolate

The distance to the object as calculated from the parallax is $1.7189 \times 10^6$ km.

- At what distance is the object if its parallax, as measured from either end of a 1000 km baseline is one minute of arch (1')
- I think that the key to this question is that the the parallax is the same from each side of the baseline.
- This implies that the leg of the right triangle is actually half of the baseline and not the full baseline.
- The problem is poorly written. A diagram like on the previous page should have been attached.