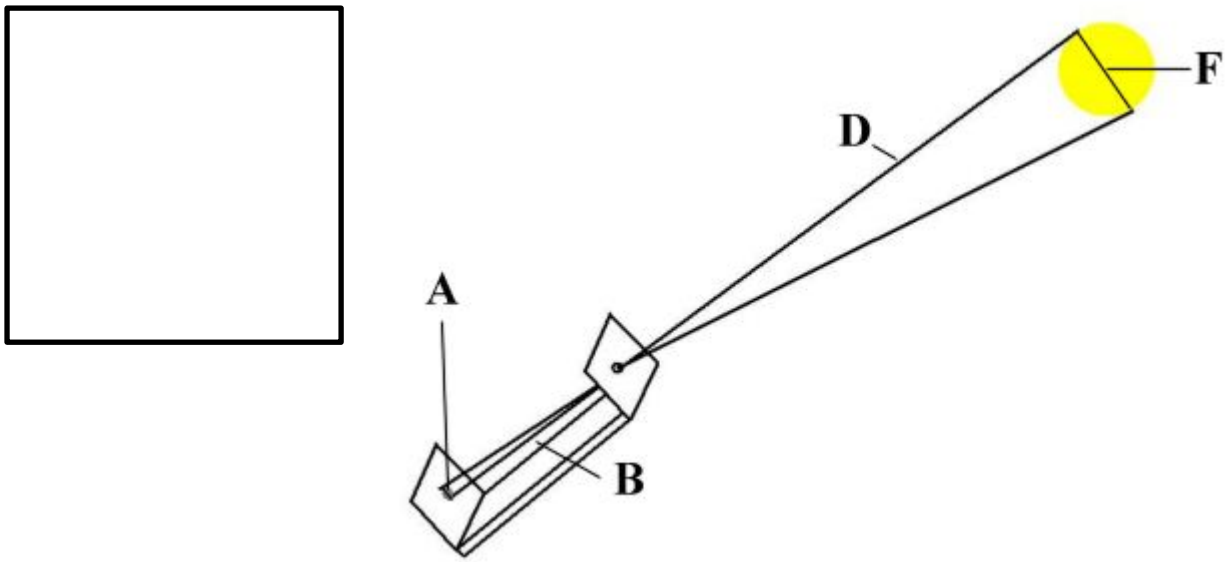
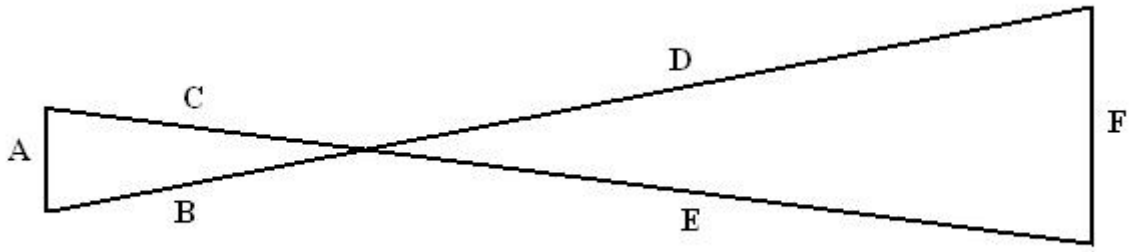
Calculating the diameter of the sun

Name: _____

1. Make a small hole in a piece of paper with a pen.
2. Outside on a clear day, hold it a known distance above this page.
3. Trace the image of the sun in the square below and measure its diameter:





4. What type of triangles are the two triangles above?_____
5. How can you tell these triangles are similar? _____
6. Complete the following:
   Sides B and C are _____. Sides D and E are _____.
   Side A corresponds to side ____. Side B corresponds to side ____.
7. Because of this, we have the ratio: $\frac{A}{B} = \frac{F}{D}$ and we can rearrange this to find $F = \frac{(A \times D)}{B}$
8. Complete the following: there are ____mm in 1cm, ____cm in 1m and ____m in 1km.
9. We know three of the values in the above drawing. Fill them in and convert to km.

Side	Represents	Measurement	Measurement in km
A	diameter of the sun's image		
B	length of metre ruler		
D	the distance to the sun	150,000,000 km	150,000,000 km

10. Using the formula in (7), we can calculate the diameter of the sun:
    $F = \frac{(A \times D)}{B} = \frac{(\quad \times \quad)}{\quad} =$ ____ km
11. How does your calculated diameter compare to the actual diameter of **1,391,978 km?**

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