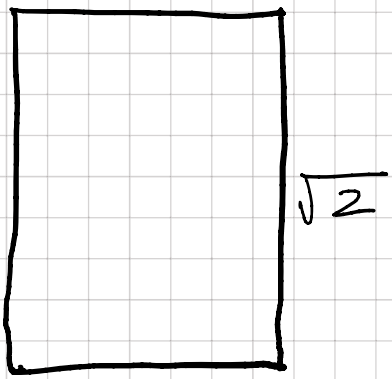
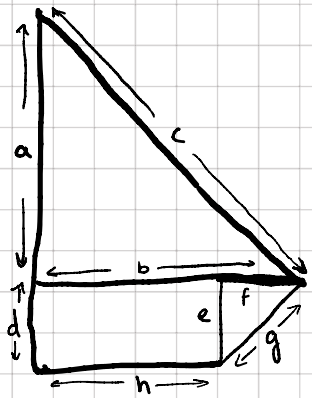
Armaan
Shaikh

1





a: 1
Same length as the top edge of the original paper
b: 1
Folded so that top edge lines up with side edge thus will make a right angle isocles triangle thus both the smaller sides will be identical.
c: $\sqrt{2}$
As it is a right angle triangle we can use pythagoras theorum
$\sqrt{1^2+1^2} = \sqrt{2}$
d: $\sqrt{2}-1$
The whole side length is equal to $\sqrt{2}$ and thus d must be equal to $\sqrt{2}-1$.
e: $\sqrt{2}-1$
Is the same length as d.
f: $\sqrt{2}-1$
Folded so that top edge lines up with side edge thus will make a right angle isocles triangle thus both the smaller sides will be identical.
g: $\sqrt{6-4\sqrt{2}}$
As it is a right angle triangle we can use pythagoras theorum

$= \sqrt{(\sqrt{2}-1)^2 + (\sqrt{2}-1)^2}$

$= \sqrt{(2-2\sqrt{2}+1)+(2-2\sqrt{2}+1)}$

$= \sqrt{4-4\sqrt{2}+2}$
$= \sqrt{6-4\sqrt{2}}$
h: $2-\sqrt{2}$
As it is the top edge take away the length of f.

Perimeter = a+c+d+h+g
$= 1+\sqrt{2}+\sqrt{2}-1+1-\sqrt{2}+1+\sqrt{6-4\sqrt{2}}$
$= 4$

Check: $\sqrt{\sqrt{\sqrt{\sqrt{4}}}} = 1.0442737$
first six non-zero terms: 442737
in ascending order : 234477 ✓