

Answer on Question #44040 – Math – Geometry

The perimeter of an equilateral triangle is $\sqrt{3}$ times its area. Find the length of each side.

Solution:

a – length of each side of the triangle;

Formula for the perimeter of an equilateral triangle:

$$P = a + a + a = 3a$$

Formula for the area of an equilateral triangle:

$$S = \frac{\sqrt{3}}{4}a^2$$

From the initial condition:

$$P = \sqrt{3}S$$

$$3a = \sqrt{3} \frac{\sqrt{3}}{4}a^2$$

$$4 = a$$

$$a = 4$$

Answer: length of each side of the triangle is equal to 4.