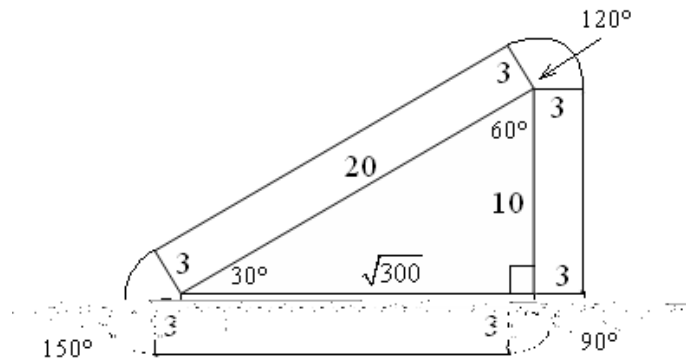


*If you need this document in another format, please email*

### Round 3

The length of the two sides given shows that the corral is a 60-30-90 degree triangle, with the remaining leg equal to  $\sqrt{300}$ . The area accessible to the giraffe is made of the triangle, three rectangles, and three partial circles. The circular areas may be calculated by using the proportions of the internal angles to 360 degrees.



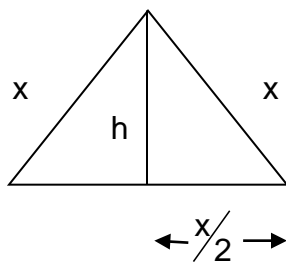
The area is then:

$$A = \frac{1}{2} (10 \sqrt{300}) + 3 \cdot 10 + 3 \sqrt{300} + 2 \cdot \frac{150}{360} (\pi \cdot 3^2) + 2 \cdot \frac{120}{360} (\pi \cdot 3^2) + \frac{90}{360} (\pi \cdot 3^2) = 256.838 \text{ m}^2$$

### Round 4

There are  $\frac{8674.3}{2.7} \approx 3213$  gaps of 2.7 which means 3214 terms altogether.

### Round 5



Let one side of the triangle be  $x$  and  $h = 2\sqrt{3}$  cm.

$$\text{Then } x^2 = \left( \frac{x}{2} \right)^2 + (2/\sqrt{3})^2$$

$$x^2 - \frac{x^2}{4} = 12$$

$$\frac{3}{4}x^2 = 12$$

$$x^2 = 16$$

$$x = 4 \text{ cm}$$

So the length of the piece of wire used to construct the equilateral triangle is

12 cm

## Round 8

Divide the semicircle in half and rotate each half into the space below the quarter circles (See the picture below) The figure formed is a rectangle of dimension 5 by 10. Thus, the area of a 5x10 rectangle is 50 square units.