

October 27th

$$AB = y$$

$$BC = 3y - 8$$

$$CD = x^2$$

$$DA = 20x$$

AB and CD are opposite, hence

$$y = x^2$$

BC and DA are opposite, hence

$$3y - 8 = 20x$$

Substituting gives

$$3x^2 - 20x - 8 = 0$$

Solving gives

$$x = 7.045\dots \text{ (ignoring the negative solution)}$$

$$\text{Area} = 20x^3 = \mathbf{6993.7\text{cm}^2}$$

$$\text{Perimeter} = 2 \times (x^2 + 20x) = \mathbf{381.1\text{cm}}$$