Edge is r

$$a = \frac{1}{2}r$$

$$r^{2} = (\frac{1}{2}r)^{2} + (rx)^{2}$$

$$r^{2} = \frac{1}{4}r^{2} + r^{2}x^{2}$$

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

$$x = \sqrt{\frac{3}{4}}$$

$$(yr)^{2} = (\frac{1}{2}yr)^{2} + (\frac{1}{2}r)^{2}$$

$$y^{2}r^{2} = \frac{1}{4}y^{2}r^{2} + \frac{1}{4}r^{2}$$

$$y^{2}r^{2} = \frac{1}{4}r^{2}$$

$$y^{2} = \frac{1}{3}$$

$$y = \sqrt{\frac{1}{3}}$$