



$$A = 2a \cdot \frac{2}{3}r$$

$$r^2 = a^2 + \left(\frac{1}{6}r\right)^2$$

$$a^2 = r^2 - \left(\frac{1}{6}r\right)^2$$

$$a^2 = r^2 - \frac{1}{36}r^2$$

$$a^2 = \frac{35}{36}r^2$$

$$a = \sqrt{\frac{35}{36}r^2} = \frac{r}{6}\sqrt{35}$$

$$A = 2a \cdot \frac{2}{3}r = 2 \cdot \frac{r}{6}\sqrt{35} \cdot \frac{2}{3}r = \frac{r}{3}\sqrt{35} \cdot \frac{2}{3}r = \frac{2}{9}r^2\sqrt{35}$$