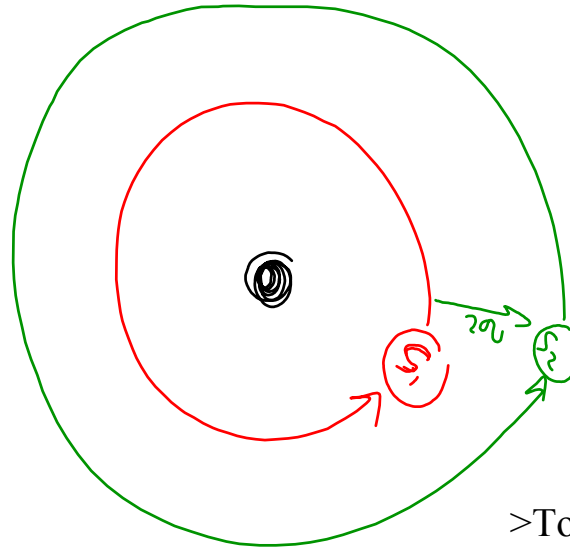


2.4

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remember, the equation of a circle at the origin is:

$$x^2 + y^2 = r^2$$

and in this case, the earth is the origin!

>To solve this question, we need to calculate the difference in each satellites's orbit.

>>In other words, first calculate the circumference of 1 orbit for both satellites.

>>>Then subtract those distances to determine "how much farther" the second satellite travels compared to the first satellite.

S₁

$$x^2 + y^2 = 2250000$$

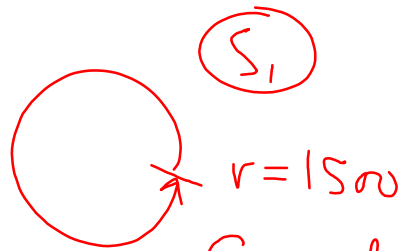
$$r^2 = 2250000$$

$$r = 1500 \text{ km}$$

$$r_2 = 1500 + 200$$

$$r_2 = 1700 \text{ km}$$

If the first satellite's radius is 1500km then add 200 km to determine the second satellite's radius.

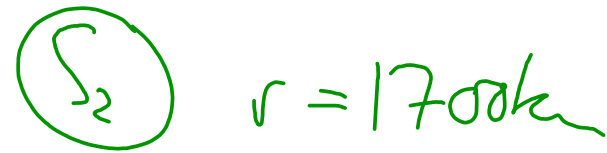


$$C = \pi d$$

$$C = 2\pi r$$

$$C_1 = 2\pi(1500)$$

$$C_1 = 9420 \text{ km}$$



$$C_2 = 2\pi(1700)$$

$$C_2 = \cancel{10681.41} \text{ km}$$
$$10676 \text{ km}$$

How
much
farther?

$$C_2 - C_1$$
$$= 10676 - 9420$$
$$= \cancel{1256}$$
$$= 1256 \text{ km}$$