$$\sum ar^n = 2$$

$$\hookrightarrow \frac{a}{1-r} = 2 \qquad a=1 \quad r=\frac{1}{2}$$

$$1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \cdots = 2$$

$$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \cdots = 1$$

$$(1 + r + r^2 + r^3 \cdots)(1 - r) = 1$$

$$\begin{aligned} &1 + \cancel{r} + \cancel{r^2} + \cancel{r^3} \cdots \\ &\quad - \cancel{r} - \cancel{r^2} - \cancel{r^3} - r^4 \cdots \\ \hline &1 \end{aligned}$$

$$\underset{\text{odd}}{\sin x} = \underset{\text{odd power}}{1x^1} - \frac{x^3}{3!} + \frac{x^5}{5!} \cdots$$

$$\sin\left(\frac{\pi}{2}\right) = 1 \qquad \frac{\pi}{2} - \frac{\pi^3}{48} + \frac{\pi^5}{2^5 \cdot 5 \cdot 4 \cdot 3 \cdot 2}$$

$$\cos(\qquad \pi - \frac{\pi^3}{24} + \frac{\pi^5}{2^4 \cdot 120}$$

[illegible] is the

1 ___

2 ___

3 ___

___ ___ ___

BAR TRIVIA

CALC 2 TRIVIA

yauheni-slide rule

ken- bag of stones

porter - table of trig

Khanyi- calculator $store

seth- abacus

saleem - prize candy

$$1+\left(1-\tfrac{1}{2}\right)+\left(\tfrac{1}{2}-\tfrac{1}{3}\right)+\left(\tfrac{1}{3}-\tfrac{1}{4}\right)\cdots = 2$$

$$\sin\theta = \theta - \frac{\theta^3}{3!} + \frac{\theta^5}{5!} - \quad = 6$$

$$\infty$$

$$1+\tfrac{1}{2}+\tfrac{1}{3}+\tfrac{1}{4}+\cdots$$

$$1-\tfrac{1}{2}+\tfrac{1}{3}-\tfrac{1}{4}+\tfrac{1}{5}-\tfrac{1}{6} = .6832$$

Show Me

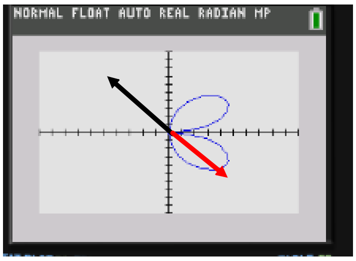
Find the arc length of the given curve. Round your answer to four decimal places.

$r = 6\sin 2\theta$

$$f(\theta) = 6\sin 2\theta$$
$$f'(\theta) = 12\cos 2\theta$$

The arc length is

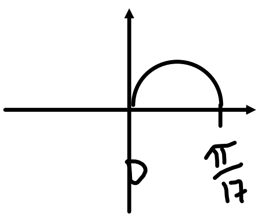
$$s = \int_0^{\pi} \sqrt{36\sin^2 2\theta + 144\cos^2 2\theta}\, d\theta$$
$$\approx \underline{29.0653}.$$

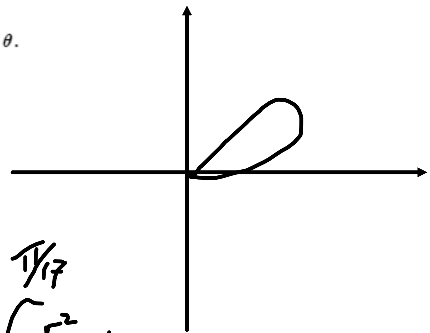


$$\int \sqrt{(r)^2 + (r')^2}\, d\theta$$

Find the area of one leaf of the rose $r = \sin 17\theta$.

$A =$ ☐





$$\int_0^{\pi/17} \frac{r^2}{2}\, d\theta$$

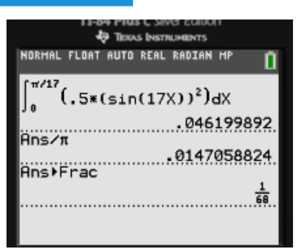
Show Me

Find the area of one leaf of the rose $r = \sin 17\theta$.

Notice that one leaf of the rose is traced out with $0 \le \theta \le \frac{\pi}{17}$. The area is given by

$$A = \int_0^{\pi/17} \frac{1}{2}(\sin 17\theta)^2\, d\theta = \frac{1}{2}\int_0^{\pi/17} \sin^2 17\theta\, d\theta$$
$$= \frac{1}{4}\int_0^{\pi/17} (1 - \cos 34\theta)\, d\theta = \frac{1}{4}\left(\theta - \frac{1}{34}\sin 34\theta\right)\Bigg|_0^{\pi/17} = \underline{\frac{\pi}{68}},$$

where we have used the half-angle formula $\sin^2\alpha = \frac{1}{2}(1 - \cos 2\alpha)$ to simplify the integrand.



integral from 0 to pi/17 of .5(sin17x)^2

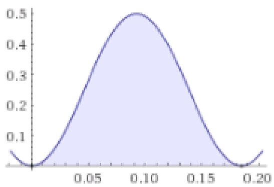
Web Apps Examples Random

Definite integral: Step-by-step solution

$$\int_0^{\frac{\pi}{17}} 0.5 \sin^2(17x)\,dx = 0.0461999$$

Open code

Visual representation of the integral:



Riemann sums: More cases

left sum	0.0461999

(assuming subintervals of equal length)

Indefinite integral: Step-by-step solution

$$\int_0^{\pi/17} 0.5 \sin^2(17x)\,dx = \frac{1}{2}\left(\frac{x}{2} - \frac{1}{68}\sin(34x)\right) + \text{constant}$$

$\pi/34$ $\quad \pi/17 \quad 0$

Qu

Find a polar equation corresponding to the given rectangular equation.

$x = 5$

$x = \boxed{r\cos\theta = 5}$

$r = \frac{5}{\cos\theta} = 5\sec\theta$

- A. $r = 5\sec\theta$ ✓
- B. $r = 5\csc\theta$
- C. $r = 5\sin\theta$
- D. $r = 5\cos\theta$

Given the polar point (r, θ), find its rectangular representation.

$\left(14, -\pi\right)$

$(-14 , 0)$