(1 point)

Find the length of the curve

$$y = \frac{x^5}{6} + \frac{1}{10x^3}, \quad 1 \le x \le 2.$$

Arc length = 1261/240

(1 point)

Find the length of the curve

$$y^2 = 4(x+4)^3, \quad 0 \le x \le 2, \quad y > 0.$$

Arc length = 2/27*(55^(3/2)-37^(3/2))

(1 point)

Find the length of the curve

$$y^2 = 4x, \quad 0 \le y \le 2.$$

Arc length = sqrt(2)+ln(1+sqrt(2))

(1 point) To find the length of the curve defined by

$$y = 5x^4 + 12x$$

from the point (-1,-7) to the point (1,17), you'd have to compute

$$\int_a^b f(x)dx$$

where $a =$ -1 , $b =$ 1 , and $f(x) =$ ((20x^3+12)^2+1)^(1/2) .

(1 point)

Approximate the arc length of the curve $y = \frac{1}{4}x^4$ over the interval $[1, 2]$ using the trapezoidal rule and 5 intervals (i.e., T_5).

$T_5 =$ 0.1*(sqrt(2)+2sqrt(1+1.2^

(1 point)

Calculate the length of the astroid of $x^{\frac{2}{3}} + y^{\frac{2}{3}} = 5$.

$s =$ 30sqrt(5)

(1 point) Find the arc length of the curve $y = \frac{1}{8}\left(-x^2 + 8\ln(x)\right)$ from $x = 4$ to $x = 7$.

Length = 33/8+ln(7/4)

(1 point) Find the total length of the astroid defined by the parametric equations

$$x(t) = a\cos^3 t \text{ and } y(t) = a\sin^3 t, \text{ where } a > 0.$$

Length = 6a

If the variable $a = 9$, what is the length of the astroid?

Answer: 54
