1. You have been asked to determine the least expensive route for a telephone cable that connects

Andersonville with Beantown (see figure below)



If it costs $5000 per mile to lay the cable on land and $8000 per mile to lay the cable across the river (with the cost of the cable included), find the least expensive route.

1. Find the shortest distance from the point (2, 0) to the curve:
2. Y=3x-1
3. $y=x^{2}$
4. $x^{2}+y^{2}=1$
5. Y=sin(x)
6. Find the dimensions of the rectangle with the greatest area that can be built so the base of the rectangle is on the x-axis between 0 and 1 and one corner of the rectangle is on the curve

$y=x^{3}$. What is the area of this rectangle?

1. calculate the limit of each expression as "x→ ∞."

$$\frac{7x+12}{3x-2}$$

1. same instructions as #4

$$\frac{x+sin⁡(x)}{x-\sin(\left(x\right))}$$