

Good afternoon: warm up in notebooks

Let $f(x) = \arcsin(\ln(x))$. If $f(2) = 0.766$, use the tangent line approximation to approximate the value of $f(1.9)$.

$$y - y_1 = m(x - x_1)$$

$\begin{matrix} \text{.766} & ? & 2 \end{matrix}$

$$f'(2) = ?$$

Math - 8

$$\boxed{\#} = 0.694$$

derivative
at a point

$$(2, 0.766)$$

$$0.766 = 0.694(2) + b$$

$$y - 0.766 = 0.694(x - 2)$$

$$0.697$$

Today: practice problems for the AP test in 'jigsaw' groups

Wednesday...? come if you can to work on presentations?

Thursday DS: testers come to finalize AP FRQ packet 1 (with the table)

Friday: motion review for testers, roller coaster work time for nontesters

~~~prom~~~

Mon 24: review stations for testers; project work time for non-testers

Wed 26: *Limits group, Taking Derivs group, Applying Derivs group*

2nd AP FRQ packet due (the one without a table)

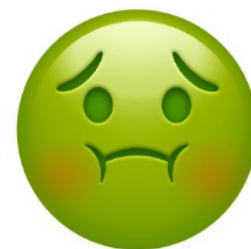
Thurs DS 27: testers 2nd timed AP FRQ; non-testers stay to work on proj

Fri 28: *Antiderivs group, Definite integral group*; review stations for testers;

project work time for non-testers

Sat 29: timed test 9a-1230p~~~

Mon May 1: goodbye; coasters due



## AP Multiple Choice Problems

1 person does #1 2 3 4

1 person does # 5 6 7 8

1 person does # 9 10 15 16

1 person does #17 18 19 20

No calculator on #1-15

Calculator ok on #16-20

11. At time  $t$ , a population of bacteria grows at the rate of  $5e^{0.2t} + 4t$  grams per day, where  $t$  is measured in days. By how many grams has the population grown from time  $t=0$  days to  $t=10$  days?

(A)  $5e^2 + 40$

(B)  $5e^2 + 195$

(C)  $25e^2 + 175$

(D)  $25e^2 + 375$

$$\int_0^{10} b'(t) dt = \underline{b(10) - b(0)}$$

?

$$\int_0^{10} (5e^{\frac{1}{5}t} + 4t) dt$$

$$5 \cdot 5 \int_0^{10} \frac{1}{5} e^{\frac{1}{5}t}$$

$$25 \left[ e^{\frac{1}{5}t} \right]_0^{10}$$

$$25 \left[ e^2 - e^0 \right]$$

$$25e^2 - 25$$

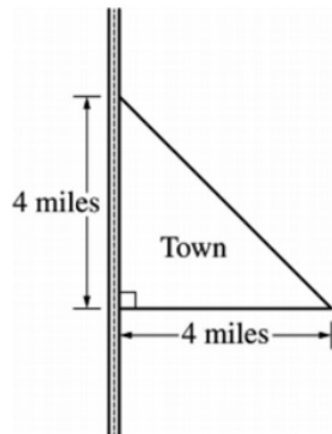
$$+ \int_0^{10} 4t dt$$

$$\left[ 2t^2 \right]_0^{10}$$

$$200 - 0$$

+

$$\boxed{25e^2 + 175}$$



12. The right triangle shown in the figure above represents the boundary of a town that is bordered by a highway. The population density of the town at a distance of  $x$  miles from the highway is modeled by  $D(x) = \sqrt{x+1}$ , where  $D(x)$  is measured in thousands of people per square mile. According to the model, which of the following expressions gives the total population, in thousands, of the town?

- (A)  $\int_0^4 \sqrt{x+1} \, dx$   
(B)  $\int_0^4 8\sqrt{x+1} \, dx$   
(C)  $\int_0^4 x\sqrt{x+1} \, dx$   
(D)  $\int_0^4 (4-x)\sqrt{x+1} \, dx$

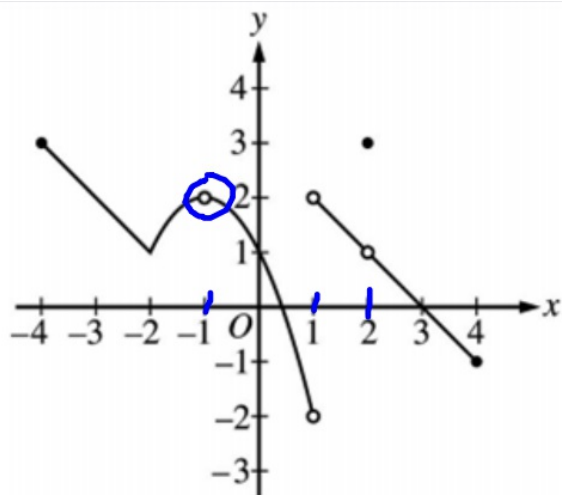
13. Which of the following is the solution to the differential equation  $\frac{dy}{dx} = y \sec^2 x$  with the initial condition  $y\left(\frac{\pi}{4}\right) = -1$  ?

(A)  $y = -e^{\tan x}$

(B)  $y = -e^{(-1+\tan x)}$

(C)  $y = -e^{(\sec^3 x - 2\sqrt{2})/3}$

(D)  $y = -\sqrt{2 \tan x - 1}$



Graph of  $f$

14. The graph of the function  $f$  is shown in the figure above. For how many values of  $x$  in the open interval  $(-4, 4)$  is  $f$  discontinuous?

(A) one

(B) two

→ (C) three

(D) four



HW:

work on presentations!!!!

testers: AP FRQ packet due Thursday  
come to DS thursday!!!!