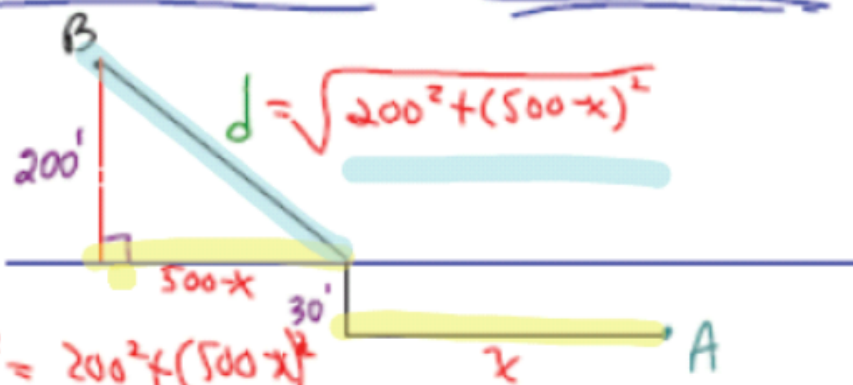


WED 05-07-08

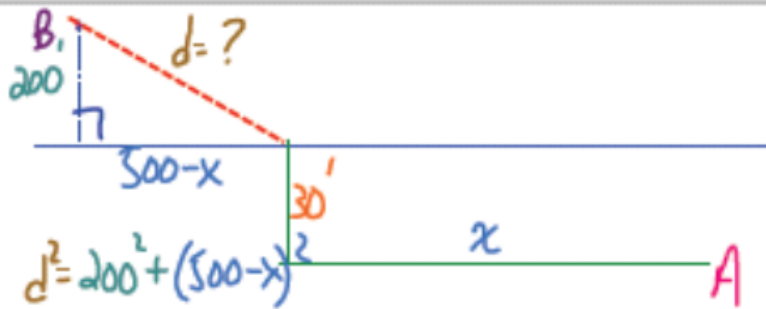
Q.R.P. TRIAL 4

62,893.90



MINIMIZE:

$$T.C.(x) = 130 \sqrt{200^2 + (500-x)^2} \text{ ] WATER}$$
$$+ 80(30+x) \text{ ] LAND}$$



$$d^2 = 200^2 + (500-x)^2$$

$$d = \sqrt{200^2 + (500-x)^2}$$

WATER

$$C(x) = 130 \cdot \sqrt{200^2 + (500-x)^2}$$

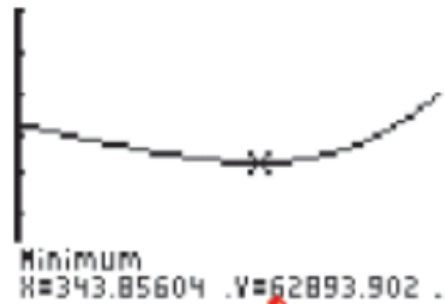
LAND

$$C(x) = 80 \cdot (x+30)$$

$$\text{TOTAL COST: } T.C.(x) = 130 \sqrt{200^2 + (500-x)^2} + 80(x+30)$$

```
Plot1 Plot2 Plot3
√Y=130√(200²+(500-X)²)+80(X+30)
```

```
WINDOW
Xmin=0
Xmax=600
Xscl=100
Ymin=30000
Ymax=100000
Yscl=10000
Xres=1
```



Minimum  
X=343.85604 Y=62893.902

MIN. COST IS \$ 62,893.90

LAND: \$ 29,908.48

WATER: \$ 32,985.42

CALCULUS STARTS NOW! MAY 7, 2008

LIMITS

11:42 AM

ALGEBRA  
GEOM  
TRIG

CALCULUS

"INTUITIVELY"

## NOTATION:

$$\lim_{x \rightarrow a} f(x) = L$$

"THE LIMIT, AS  $x$  APPROACHES  $a$ ,  
OF  $f(x)$  IS EQUAL TO  $L$ ."

SOME  
NUMBER

SOME OTHER  
NUMBER

$$\lim_{x \rightarrow 2} x^2 = ?$$

Ex.1)  $\lim_{x \rightarrow 2} x^2 = ?$

"TABLE"

4 WAYS TO EVALUATE LIMITS

"RIGHT HAND LIMIT"

1.1 RAD AUTO REAL						
A	xn	B	C	D	E	F
		$x^2$				
1						
2						
3						
4						
5						

B  $= (xn)^2$

1.1 RAD AUTO REAL				
A	xn	B	C	D
		$= xn^2$		
5	2.1	4.41		
6	2.01	4.0401		
7	2.001	4.004001		
8	2.0001	4.00040001		
9				

A9

R.H.L.

"LEFT HAND LIMIT" L.H.L.

1.1 RAD AUTO REAL				
A	xn	B	C	D
		$= xn^2$		
1	1.8	3.24		
2	1.9	3.61		
3	1.99	3.9601		
4	1.999	3.996001		
5				

A5

$\lim_{x \rightarrow 2^+} x^2 = 4$

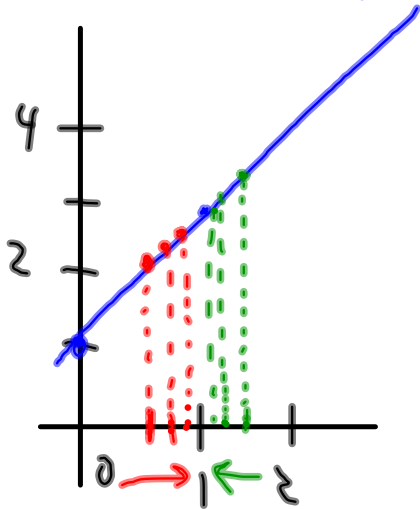
L.H.L. = R.H.L.

$\therefore \lim_{x \rightarrow 2} x^2 = 4$

$\lim_{x \rightarrow 2^-} x^2 = 4$

Ex. 2)  $\lim_{x \rightarrow 1} (2x+1) = ?$

"GRAPH"



$f(x) = 2x + 1$

L.H.L.  
 $x \rightarrow 1^-$

$\lim_{x \rightarrow 1^-} (2x+1) = \underline{\underline{3}}$

R.H.L.

$\lim_{x \rightarrow 1^+} (2x+1) = \underline{\underline{3}}$

$\therefore \lim_{x \rightarrow 1} (2x+1) = 3$

"SUBSTITUTION"

$$\lim_{x \rightarrow 1} (2x+1)$$

$$= 2(1)+1$$

$$= \underline{\underline{3}}$$

$$\text{Ex 3) } \lim_{x \rightarrow 2} \frac{x^3 - 2x^2}{x - 2}$$

ALGEBRA

$$= \lim_{x \rightarrow 2} \frac{x^2(x-2)}{\cancel{(x-2)}}$$

FACTOR

$x \neq 2$

SUBST:

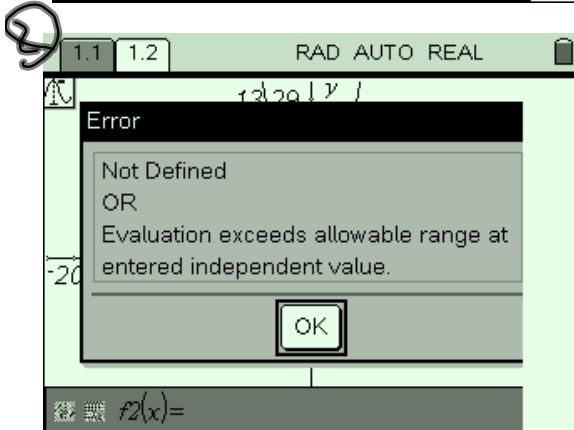
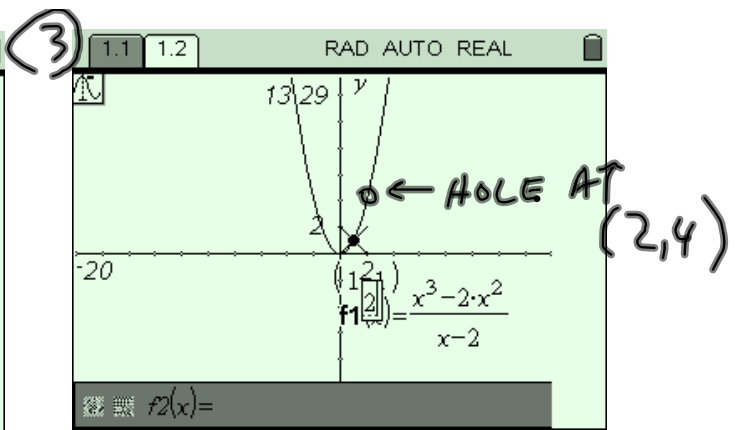
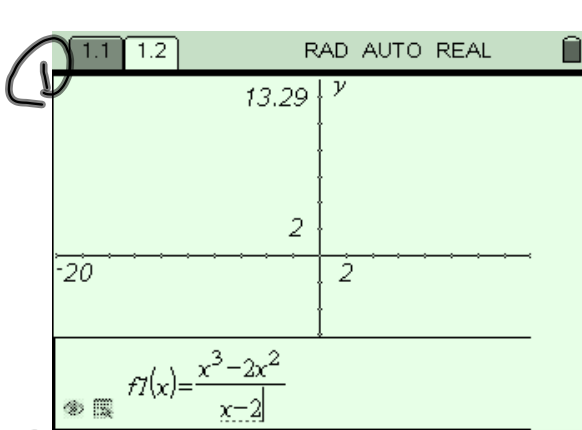
$$\frac{2^3 - 2(2)^2}{2 - 2}$$

$$= \frac{0}{0} \text{ "EXPLOSION"}$$

UNDEFINED

$$= \lim_{x \rightarrow 2} x^2 = 4$$





SUMMARIZE

TAGS

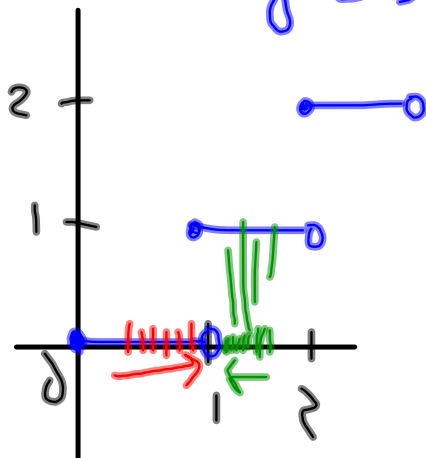
GATS

STAG

ATGS

Ex 4)  $\lim_{x \rightarrow 1} [x] = ?$

$y = [x]$



L.H.C.  $\lim_{x \rightarrow 1^-} [x] = 0$

R.H.L.  $\lim_{x \rightarrow 1^+} [x] = 1$

$\therefore \lim_{x \rightarrow 1} [x] =$

DOES NOT EXIST  
(D.N.E.)

O.T.L.

DAY 5

p. 72 1-22(ALL)  
L-1