

This room is NOT free...
 ... before class on TR
 ... after MTF

So it's open before class on MWF
 after WR

Study sessions?

S'1.4 questions?

#3

S'2.1 questions?

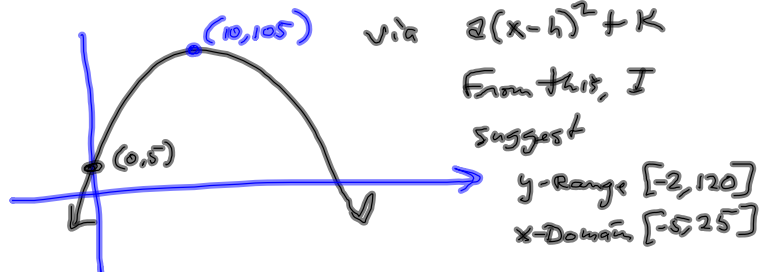
#1 C Forget it.

S'1.4 #3 - I did some algebra to ball-park the viewing rectangle.

$$f(x) = -x^2 + 20x + 5$$

$$= -(x^2 - 20x + 10^2) + 5 + 100$$

$$= -(x-10)^2 + 105 \quad (h, k) = (10, 105)$$



$$-(x-10)^2 + 105 = 0$$

$$+(x-10)^2 = +105$$

$$x-10 = \pm \sqrt{105}$$

$$x = 10 \pm \sqrt{105}$$

8. The displacement (in centimeters) of a particle moving back and forth along a straight line is given by the equation of motion $s = 2 \sin \pi t + 3 \cos \pi t$, where t is measured in seconds.

(a) Find the average velocity during each time period:

$m_{sec} = 6$ (i) $[1, 2]$ (ii) $[1, 1.1]$ $m_{sec} = -4.712$
 $m_{sec} = -6.134$ (iii) $[1, 1.01]$ (iv) $[1, 1.001]$ $m_{sec} = -6.268$

(b) Estimate the instantaneous velocity of the particle when $t = 1$. $I \text{ guess } -6.283$.

We use graphing calculator's Table feature.

X	Y2
2	6
1.1	-4.712
1.01	-6.134
1.001	-6.268
1	-6.283

$$Y_1 = s(t) = 2 \sin(\pi t) + 3 \cos(\pi t)$$

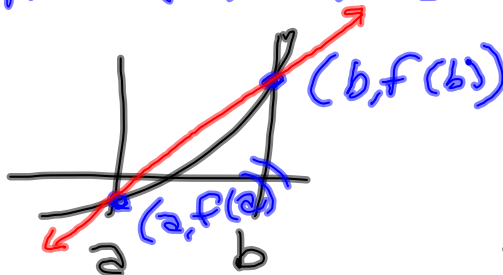
$$Y_2 = \frac{s(t) - s(1)}{t - 1}$$

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Plot1 Plot2 Plot3
Y1=2sin(πX)+3co
s(πX)
Y2=(Y1(X)-Y1(1)
)/(X-1)
Y3=2.5(X-2)+1
Y4=2(X-2)+1
Y5=

```

Average slope of $f(x)$ on $[a, b]$ is $\frac{y_2 - y_1}{x_2 - x_1} = \frac{f(b) - f(a)}{b - a}$



on $[1, 2]$, it's

$$\frac{f(2) - f(1)}{2 - 1}$$

or in this case

$$\frac{s(2) - s(1)}{2 - 1}$$

on $[1, 1.01]$

$$\frac{s(1.01) - s(1)}{1.01 - 1}$$

```

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```