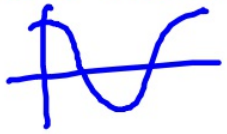
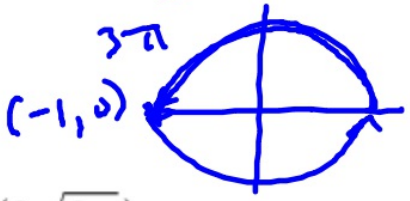
Good afternoon: attach, then do warm up in notebooks (no calculator) *sit in same seats as tan-line game*

If $f(x) = \sin(x^2 + \pi)$, then $f'(\sqrt{2\pi}) =$





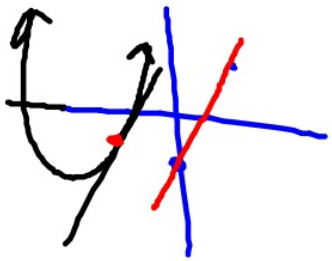
(A) $-2\sqrt{2\pi}$ (B) -2 (C) -1 (D) $\cos(2\sqrt{2\pi})$

$f'(x) = \cos(x^2+\pi)\cdot(2x) \Rightarrow \cos(3\pi)\cdot(2\cdot\sqrt{2\pi})$

The function g is defined by $g(x) = x^2 + bx$, where b is a constant. If the line tangent to the graph of g at $x = -1$ is parallel to the line that contains the points $(0, -2)$ and $(3, 4)$, what is the value of b ?

(A) -1 (B) 2 (C) $\frac{5}{2}$ (D) 4

$\frac{y_2-y_1}{x_2-x_1} = \frac{4--2}{3-0} = \frac{6}{3} = 2$



$g'(x) = 2x + b$

$g'(-1) = -2 + b$

$-2 + b = 2$

Finishing the Tan-Line game

F : #1-10

F' : #11-20

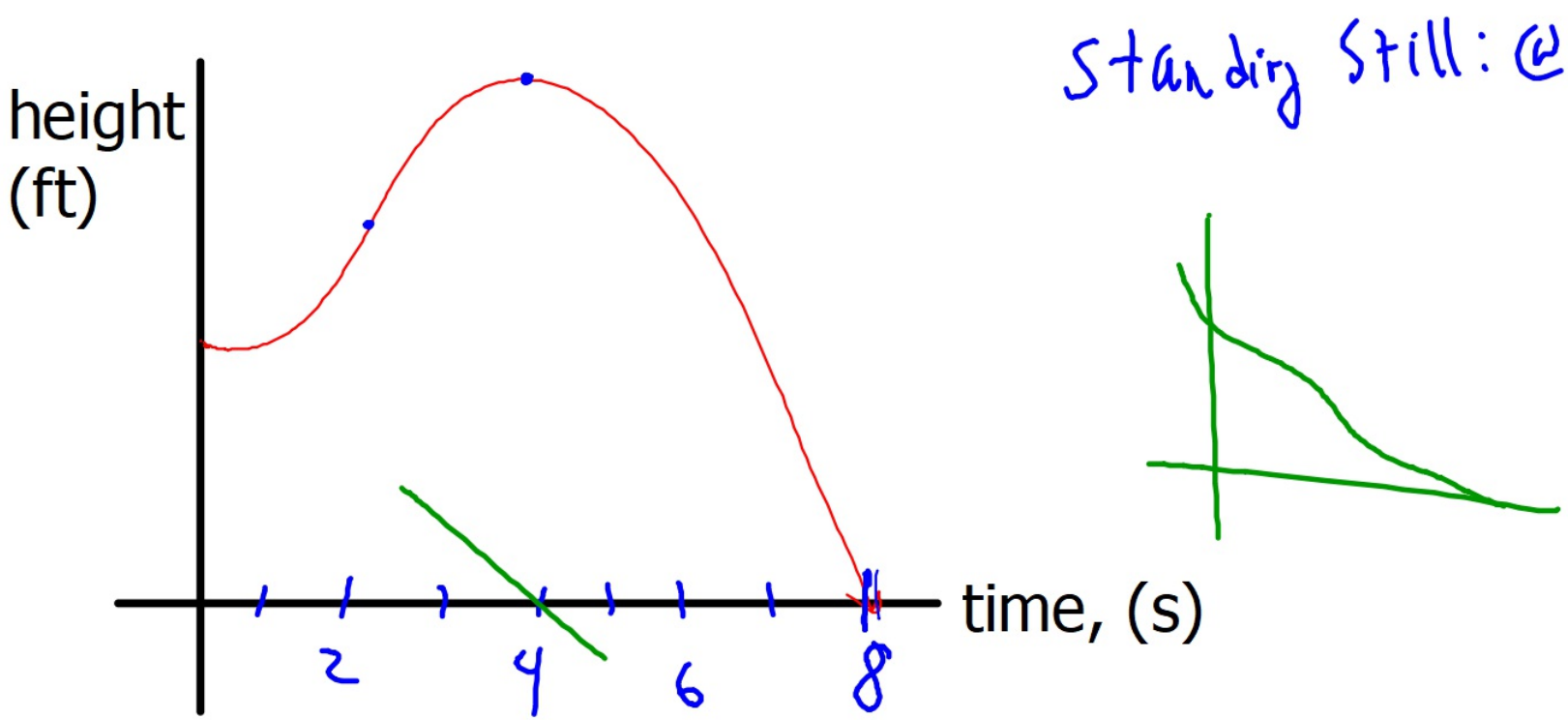
Tan line: #31-40

Hint: pair F and F' first

When finished, work on AP packet

we will move on around 3:11p

Position-Velocity-Acceleration (notes)



Standing Still: @ t = 4

"Higher Order Derivatives": 2nd derivative, 3rd derivative, etc.

Notation:

Function	Derivative	2nd Deriv.	3rd Deriv
y	y'	y''	y'''
f(x)	f'(x)	f''(x)	$f^{(3)}(x)$
y	$\frac{dy}{dx}$	$\frac{d^2y}{dx^2}$	$\frac{d^3y}{dx^3}$

$y^{(4)}$ ...

How do we talk about "where" something is (position)?
What unit?

distance (mi, ft, m, cm, etc.)

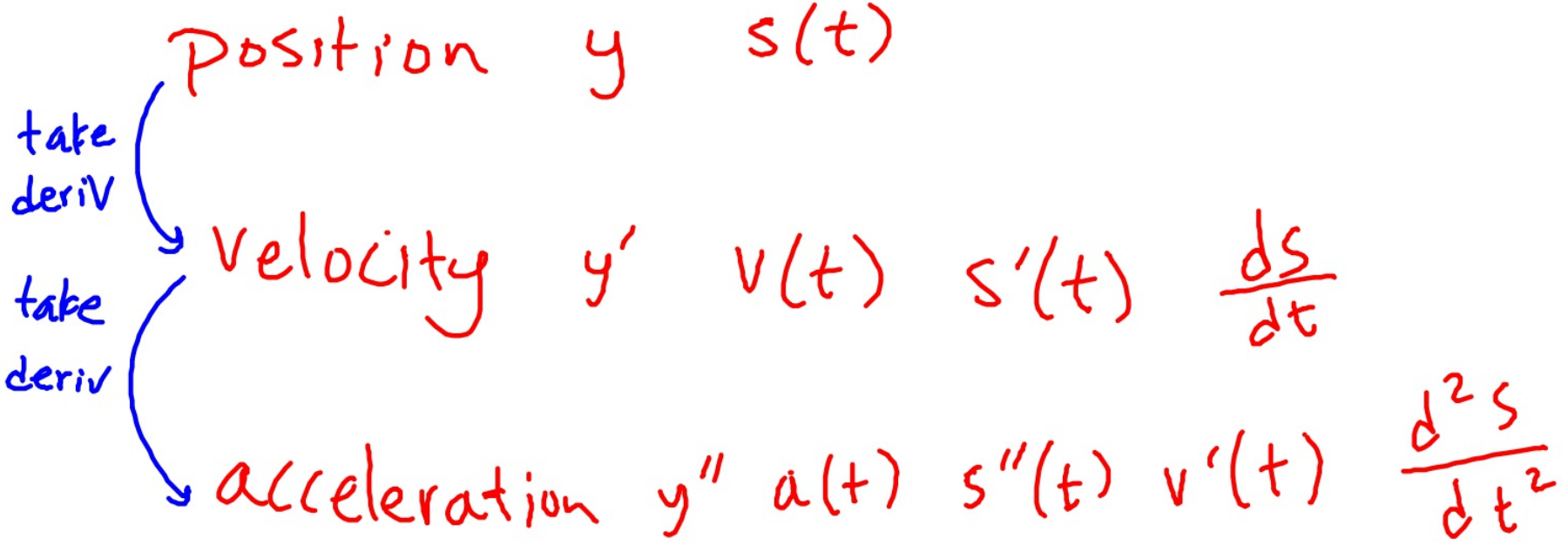
What units do we talk about speed in?

$\frac{\text{distance}}{\text{time}}$ (mi/hr, m/s, etc.)

How do we describe acceleration?

$\frac{\frac{\text{distance}}{\text{time}}}{\text{time}} \Rightarrow \frac{\text{distance}}{\text{time}^2}$ (cm/s^2, mi/hr/s, etc.)

The Motion Hierarchy



AP Packet

due Monday