The course schedule has some things in the "Topics" column that need to be changed. Holdovers from 2009.
Due dates on homework announced in class.

Diagnostic Tests: Keep pecking on that: Take the test, and then use the Diagnostic Tests link:

Course Website/Tests/Diagnostic Tests

That's where a concordance between the questions and review materials is found.

Questions on 1.1, 1.2?

1.2 II is about using a calculator/spreadsheet to do regressions. Not a big deal in Calculus.

Today, 1.2, 1.3, 1.4 briefly, if time.

§1.2 #8, 2nd graph
there's one like it.

$f(x) = ax^2+bx+c$

$(0,1), (-1,9), (2,3)$ are on the graph.

$f(0)=1$
$f(-1)=9$
$f(2)=3$

$f(0) = \boxed{c=1} \Rightarrow f(x) = ax^2+bx+1$

$f(-1) = a(-1)^2+b(-1)+1$
$= a-b+1 = 9$
$\Rightarrow a-b=8 \Rightarrow \underline{a=b+8}$

$f(2) = a(2)^2+b(2)+1$
$= 4a+2b+1 = 3$
$\Rightarrow 4a+2b = 2$

$\Rightarrow 4(b+8)+2b = 2$
$4b+32+2b = 2$
$6b+32 = 2$
$6b = -30$
$\boxed{b=-5} \Rightarrow a = b+8 = -5+8 = \boxed{3=a}$

$\therefore f(x) = 3x^2-5x+1$ #8b rolls the same way.

with matrices:

$a - b = 8$

$4a + 2b = 2$

$$\left[\begin{array}{cc|c} 1 & -1 & 8 \\ 4 & 2 & 2 \end{array}\right] \sim \left[\begin{array}{cc|c} 1 & -1 & 8 \\ 0 & 6 & -30 \end{array}\right] \sim \left[\begin{array}{cc|c} 1 & -1 & 8 \\ 0 & 1 & -5 \end{array}\right]$$

$$\sim \left[\begin{array}{cc|c} 1 & 0 & 3 \\ 0 & 1 & -5 \end{array}\right] \Longrightarrow \begin{array}{l} a = 3 \\ b = -5 \end{array}$$

So $f(x) = 3x^2 - 5x + 1$

One similar to §1.2#9

$f(x)$ is cubic polynomial

$f(1) = 7$, $f(2) = f(-3) = f(-1) = 0$

Recall FACTOR Theorem

$f(b) = 0 \Longleftrightarrow x - b$ is a factor, so

$f(x) = a(x-2)(x+3)(x+1)$, but we don't know what 'a' is.

But $f(1) = 7 \Longrightarrow$

$f(1) = a(1-2)(1+3)(1+1) = 7$

$\Longrightarrow a(-1)(4)(2) = 7$

$-8a = 7$

$a = -\frac{7}{8}$, so

$f(x) = -\frac{7}{8}(x-2)(x+3)(x+1)$ which we can expand to get a book answer, but I'm done.

$f(x) = ax^3 + bx^2 + cx + d$

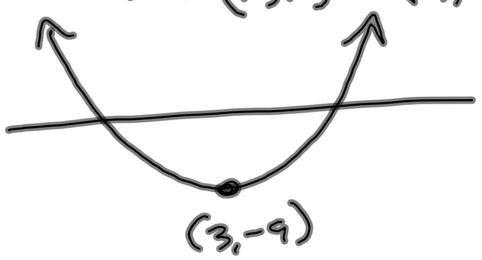
$f(t) = t^2 - 6t$ Graph. State $\mathcal{D}$ & $\mathcal{R}$

From last time, Terry found the vertex by letting $t = -\frac{b}{2a} = -\frac{(-6)}{2(1)} = 3$

$a = 1,\ b = -6,\ c = 0$

$f(-\frac{b}{2a}) = f(3) = 3^2 - 6(3) = 9 - 18 = -9$

$\longrightarrow (h, k) = (3, -9)$ is plenty for $\mathcal{D}$ & $\mathcal{R}$ purposes.



$\mathcal{D} = \mathbb{R}$

$\mathcal{R} = [-9, \infty)$

§1.3 Stuff — Transforming functions

$f(x-k)$ $(x-2)^2$	right k	$f(x) - k$	down k	$x^2 - 2$
$f(x+k)$ $(x+2)^2$	left k	$f(x) + k$	up k	$x^2 + 2$

		$f(x)$		$f(7x)$
Shrink	$f(7x)$	$(1,5)$	$\longrightarrow$	$(\frac{1}{7}, 5)$
Stretch	$f(\frac{1}{3}x)$	$(1,5)$	$\longrightarrow$	$(3, 5)$
stretch	$3f(x)$	$(1,5)$	$\longrightarrow$	$(1, 15)$
Shrink	$\frac{1}{9}f(x)$	$(1,5)$	$\longrightarrow$	$(1, \frac{5}{9})$

Not as intuitive

④ up 11

$$3\sin(3x-2) + 11 = 3\sin(3(x - \tfrac{2}{3})) + 11$$

① 3y's ② $\frac{1}{3}$ x's ③ right $\frac{2}{3}$

$f(x) = \sin x$

① $3\sin x$

② $3\sin(3x)$

③ $3\sin(3(x - \frac{2}{3}))$

④ $3\sin(3(x - \frac{2}{3})) + 11$

A general idea, but Really Tedious.

$y = x^2 - 4x + 3$ $\qquad -2^2 \qquad (-2)^2$

$= x^2 - 4x + 2^2 - 2^2 + 3$

$\frac{4}{2} = 2 \longrightarrow 2^2$

$= (x-2)^2 - 1$

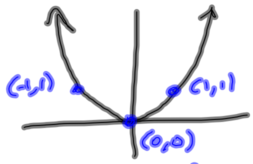
Right 2 $\qquad$ Down 1

Good

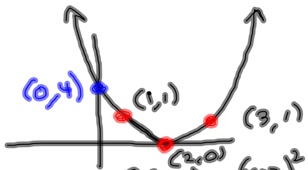
whole class helped stupid teacher.

Not good

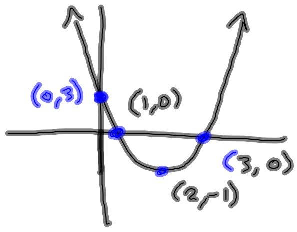
$a(x-h)^2 + K$



$f(x) = x^2$



$f(x-2) = (x-2)^2$



$f(x-2) - 1 =$
$(x-2)^2 - 1 = x^2 - 4x + 3$

§1.2 Due Tuesday

§1.3 Due Wednesday

§1.4 " " probably.