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.

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§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.

$f(0) = 1$

$f(-1) = 9$

$f(2) = 3$

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

$f(-1) = a(-1)^2 + b(-1) + 1$

$= a - b + 1 = 9$

$\Longrightarrow a - b = 8 \Longrightarrow a = b+8$

$f(2) = a(2)^2 + b(2) + 1$

$= 4a + 2b + 1 = 3$

$\Longrightarrow 4a + 2b = 2$

$\Longrightarrow 4(b+8) + 2b = 2$

$4b + 32 + 2b = 2$

$6b + 32 = 2$

$6b = -30$

$\boxed{b = -5} \Longrightarrow a = b+8 = -5+8 = \boxed{3 = a}$

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

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

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One similar to §1.2#9

$f(x)$ is cubic polynomial

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

Recall FACTOR Theorem

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

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

But $f(1)=7 \Rightarrow$

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

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

$-8a=7$

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

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

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

From last time, Terry found the vertex

by letting $t = -\frac{b}{2a} = -\frac{(-6)}{2(1)} = 3$

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

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

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

$(3,-9)$

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

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

§1.3 Stuff — Transforming functions

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

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

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 $3\sin\left(3\left(x-\frac{2}{3}\right)\right)$

④ $3\sin\left(3\left(x-\frac{2}{3}\right)\right)+11$

A general idea, but Really Tedious.

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

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

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

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

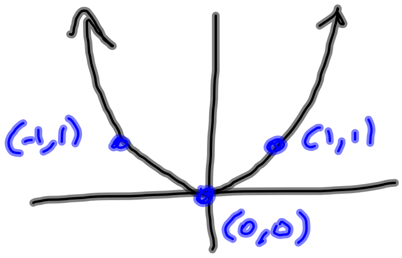
Right 2 Down 1

whole class helped stupid teacher.

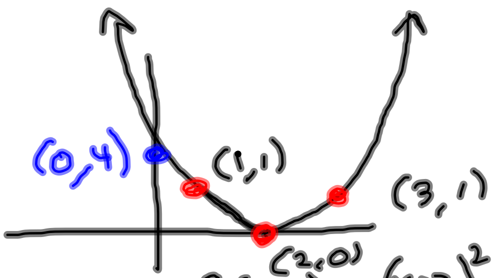
Good

Not good

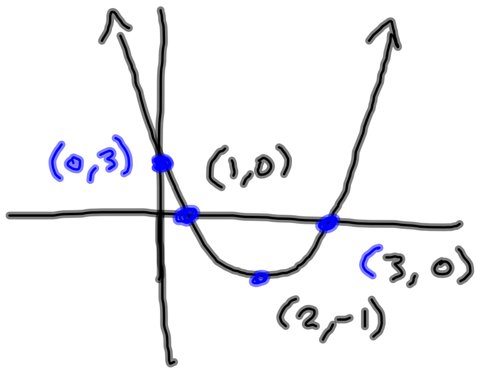
$a(x-h)^2 + K$



$f(x) = x^2$



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



$f(x-2) - 1 =$

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

S 1.2 Due Tuesday

S 1.3 Due Wednesday

S 1.4 " " probably.

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