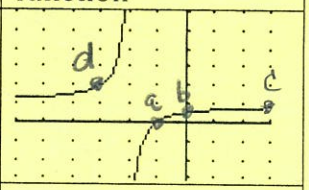
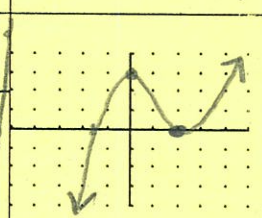
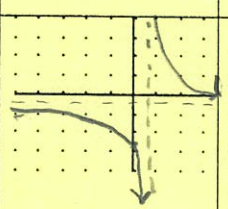
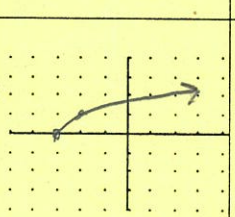
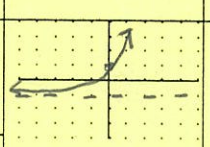
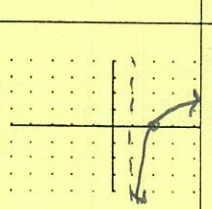
EVERYTHING YOU SHOULD HAVE LEARNED IN A 1050 CLASS ABOUT FUNCTIONS

	Quadratic functions	Polynomial functions	Rational functions	Radical functions	Exponential function	Logarithmic function	Reading a graph (picture) of a function
	$f(x) = 2x^2 - 8x + 3$	$P(x) = 2x^3 - x^2 - 4x + 3$	$q(x) = \frac{-x+5}{3x-2}$	$r(x) = \sqrt{x+3}$	$k(x) = 2 \cdot e^x - 1$	$m(x) = \ln(x-1)$	
Asymptotes	—	—	$x = \frac{2}{3}$ $y = -\frac{1}{3}$	—	$y = -1$	$x = 1$	$x = -2$ $y = 1$
Domain Range	$\mathbb{R}$ $[-5, \infty)$	$\mathbb{R}$ $\mathbb{R}$	$\mathbb{R}, x \neq \frac{2}{3}$ $\mathbb{R}\ y \neq -\frac{1}{3}$	$[3, \infty)$ $[0, \infty)$	$\mathbb{R}$ $(-1, \infty)$	$(1, \infty)$ $\mathbb{R}$	$\mathbb{R}\ x \neq -2$ $\mathbb{R}\ y \neq 1$
x-int. y-int.	$\left(\frac{2+\sqrt{10}}{2}, 0\right)\left(\frac{2-\sqrt{10}}{2}, 0\right)$ $(0, 3)$	$(-1.5, 0)\ (1, 0)$ Double Rt. $(0, 3)$	$(5, 0)$ $(0, -2.5)$	$(-3, 0)$ $(0, \sqrt{3})$	$(\ln \frac{1}{2}, 0)$ $(0, 1)$	$(2, 0)$ $\emptyset$	Mark a,b on graph $(-1, 0)$ $(0, \frac{1}{2})$
$f^{-1}(x)$ if it exists	DNE	DNE	$y = \frac{2x+5}{3x+1}$	$y = x^2 - 3,\ x \geq 0$	$y = \ln \frac{x+1}{2}$	$y = e^x + 1$	yes
f(3) =	-3	36	$\frac{2}{7}$	$\sqrt{6}$	$2e^3 - 1$	$\ln 2$	Mark c on graph 1
If f(x) = 2, x = ?	$2 \pm \frac{\sqrt{14}}{2}$	There are 3 values (harder to find)	$\frac{9}{7}$	$\frac{3}{2}$ 1	$\ln \frac{3}{2}$	$e^2 + 1$	Mark d on graph $x = -3$ when $y = 2$
GRAPH it							

find : $f(-5) = 93$ $(q \circ r)(6) = \frac{2}{7}$ $f(t+1) = 2t^2 - 4t - 3$ $r(f(x)) = \sqrt{2x^2 - 8x + 6}$ Are any of these functions Even or Odd? No

And a lot of other things we learned:

A, B	Square A A^2	Multiply them (A)(B) and BA	Divide them $\frac{B}{A}$
Exponents $(-2x^2y)^3$, $(6x^3y)$ Negative exponents $(2xy^2)^{-3}$, $(3x^{-2}y)$	$64x^{12}y^6$ $\frac{1}{64x^6y^{12}}$	$-48x^9y^4$ $\frac{3}{8x^5y^5}$	$-\frac{3}{4x^3y^2}$ $24xy^7$
Complex numbers (3-2i), (2+i) Conjugates: (3+2i) (2-i)	$5-12i$	$8-i$	$\frac{4}{13}+\frac{7}{13}i$
Matrices $A=\begin{bmatrix}-2 & 1\\ 4 & 3\end{bmatrix}$ $B=\begin{bmatrix}0 & 1 & -3\\ 2 & 4 & 0\end{bmatrix}$ $det(A) = -10$	$\begin{bmatrix}8 & 1\\ 4 & 13\end{bmatrix}$	$AB=\begin{bmatrix}2 & 2 & 6\\ 6 & 16 & -12\end{bmatrix}$ $BA = \emptyset$	$A^{-1}B=$ $\frac{1}{10}\begin{bmatrix}2 & 1 & 9\\ 4 & 12 & -12\end{bmatrix}$
Sequences, Series	A ,G, N	a_{15}	S_{15} | S_∞ ?
-1, 4, 9, ...	A $d=5$	69	405 | ∞
2, 2/3, 2/9,...	G $r=\frac{1}{3}$	$2(\frac{1}{3})^{14}$	$\frac{2(1-\frac{1}{3}^{14})}{1-\frac{1}{3}}$ $=\frac{3(1-\frac{1}{3}^{14})}{2}$ | 3
1,2,3,5,8,...	N Fibonacci	610	____ | ∞
1, 4, 9, 16, ...	N Squares	225	____ | Δ

Growth, decay: How long to go from \$500 to \$2000 at 4% interest compounded monthly.

\$2000=
\$500(1+.04/12)^(12t)
4 =(1.003333)^12t
ln4 = 12t
(ln 4)/12 = t

$2x-3y=8$

$5x-7y=-3$

How many ways to solve?
Graph
Substitution
Linear combinations
Gauss-Jordan row operations
Gauss-Jordan Matrix reduction
Matrix algebra (use inverse)

$x=-65$
$y=-46$
$(-65,-46)$

Cramer's Rule

And they all have the same answer!

Binomial Theorem

$\binom{12}{3}=220$ $\quad {}_8C_5=56$ $\quad \frac{12!}{3!4!}=3326400$

$(2x-1)^5 = 32x^5-80x^4+80x^3-40x^2+10x-1$

What is the third degree term in $(3x+2)^6$?

$4320x^3$