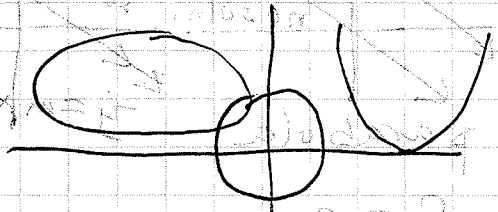
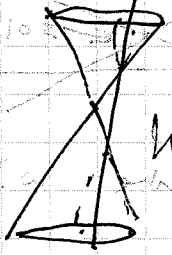
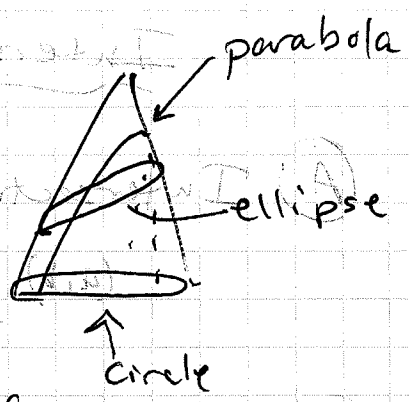


~~Ch 9~~

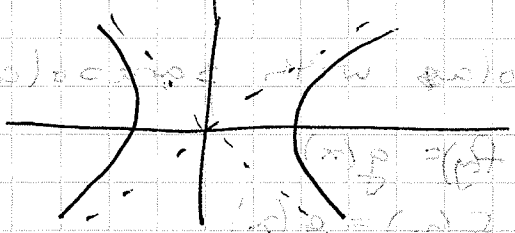
Ch 9

Skipping
conic
sections



Hyperbola

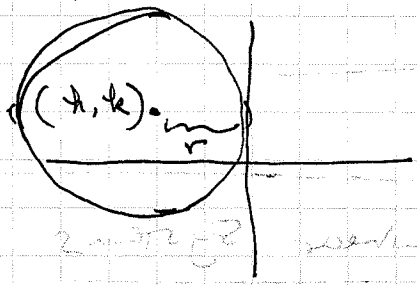
Done w/ Ch 9



Ch 11 Systems of Equations + Inequalities

Aside circle

$$(x-h)^2 + (y-k)^2 = r^2$$

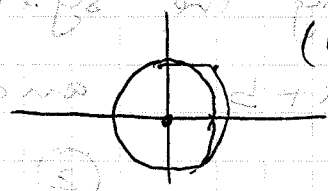


Center (h, k)
radius r

"locus" - set of pts at a given location

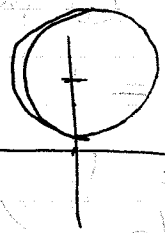
Ex $x^2 + y^2 = 1$

$(0, 0)$ $r = 1$



Ex $x^2 + (y-3)^2 = 2$ $(h, k) = (0, 3)$

$r = \sqrt{2}$

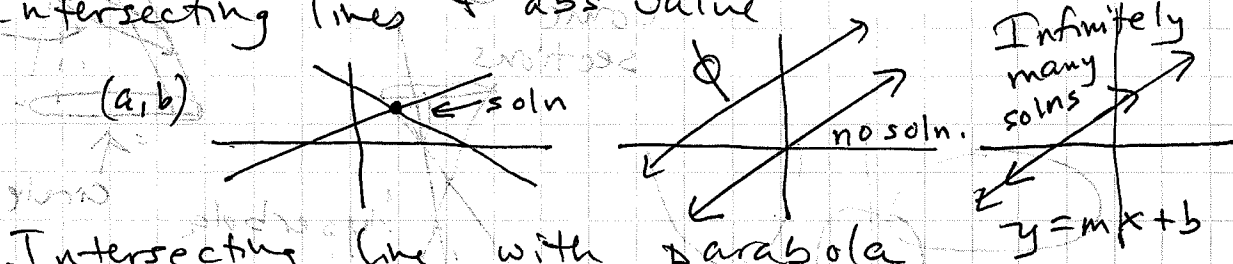


$\frac{1}{4} = \frac{y^2}{5} = 0$

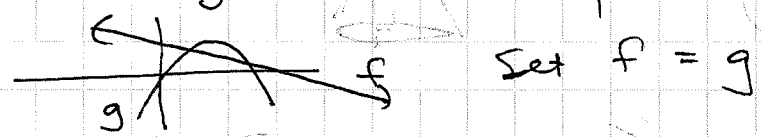
$(\frac{1}{2}, \frac{1}{5})$

Intersecting systems of equations

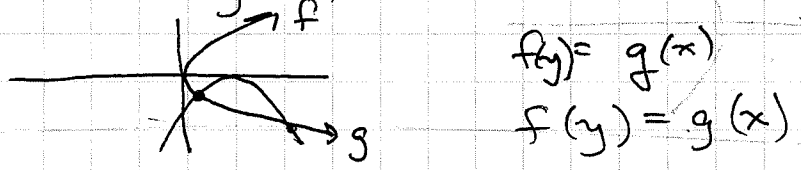
(A) Intersecting lines + abs value



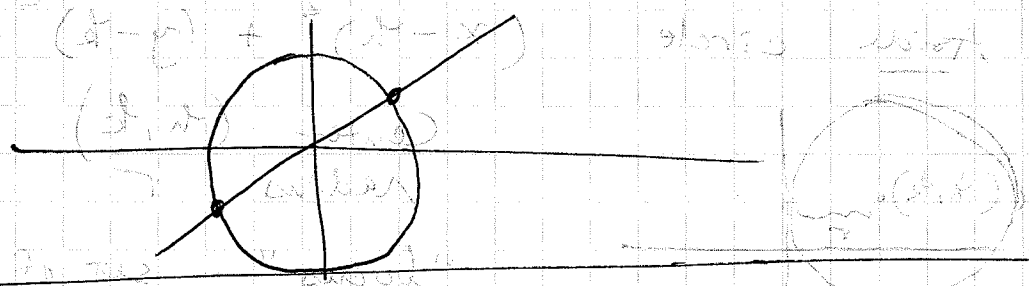
(B) Intersecting line with parabola



Intersecting parabolas with parabola



Intersecting line with circle



Methods for Solving Linear Systems

Note Whenever you find an x- or y-intercept you're solving the system of eqns.

$y = mx + b$ and $x = 0$ or $y = 0$

Method 1
Substitution

Now solve ① $y = \frac{x}{2}$ and ② $2y - 3x = 1$

Soln - Substitution ① into ②

① \rightarrow ② $2\left(\frac{x}{2}\right) - 3x = 1 \rightarrow 0y = \frac{-1/2}{2} = -\frac{1}{4}$
 $x - 3x = 1$
 $x = -1/2$
 $\left(-\frac{1}{2}, -\frac{1}{4}\right)$

Method 2
Elimination

$$4x - 2y = 7 \quad (1)$$

$$-3x + 5y = 2 \quad (2)$$

Try to eliminate a variable by multiplying to get an LCM of one of the variables' coeffs.

LCM of coeffs of x

$$3(4x - 2y) = 7$$

$$4(-3x + 5y) = 2$$

$$\begin{array}{r} (1) \quad 12x - 6y = 21 \\ -12x + 20y = 8 \\ \hline \end{array}$$

$$14y = 29$$

$$y = \frac{29}{14}$$

$x = ?$ Substitute into (1) or (2)

$$(1) \quad 4x - 7\left(\frac{29}{14}\right) = 7$$

$$4x = 7 + \frac{29}{7} = \frac{49 + 29}{7} = \frac{78}{7}$$

$$4x = \frac{78}{7} \rightarrow x = \frac{78}{28} = \frac{39}{14} = 2\frac{11}{14}$$

Lines intersect at $\left(2\frac{11}{14}, 2\frac{1}{14}\right)$

S. 1004 & M.
 1004/1005/1006

Handwritten notes on the left side of the page, partially obscured and difficult to read.

$$\textcircled{1} \quad F = pS = xH$$

$$\textcircled{2} \quad S = pS + xS =$$

$$\begin{cases} F = pS - xH & \textcircled{3} \\ S = pS + xS & \textcircled{4} \end{cases}$$

$$S = pS - xS$$

$$S = pS + xS$$

Handwritten notes at the bottom left, including the circled numbers 1 and 2.

$$\frac{pS}{xH} = \frac{pS}{xH}$$

$$F = \left(\frac{pS}{xH} \right) S - xH \quad \textcircled{1}$$

$$\frac{pS}{xH} = \frac{pS + pS}{xH} = \frac{pS}{xH} + F = xH$$

$$\frac{pS}{xH} = \frac{pS}{xS} = \frac{pS}{xS} = x \quad \leftarrow \quad \frac{pS}{xH} = xH$$

$$\left(\frac{pS}{xH}, \frac{xH}{pS} \right) \quad \text{Handwritten notes in a box at the bottom right.}$$