# Worksheet # 1 Key

Don't forget to use your neighbors and play around with the ideas presented here.

Graph the following pairs of functions and find **all** points of intersection.

1. $y_1 = 1.1x - 2$
   $y_2 = -5x + 8$

   $(1.6393443\ ,\ -0.1967213)$

2. $y_1 = -1.5x - 1$
   $y_2 = -x^2 - 4x + 5$

   $(-4\ ,\ 5)$
   $(1.5\ ,\ -3.25)$

3. $y_1 = x^2 + x - .75$
   $y_2 = x^3 - 3x^2 - x + 4$

   $(-1.171114\ ,\ -0.5496056)$
   $(0.96409493\ ,\ 1.143574)$
   $(4.2070194\ ,\ 21.156032)$

   hint: You need to **ZOOM OUT**

4. Graph the following and find the top of the peak.

$y = -x^2 + 4.9x + .5$

(2.45 , 6.5025)

Use the **zero** or **root** feature to find where the graph intersects the $x$-axis.

$x = -0.1$
$x = 5$

5. Graph the following and find **all** points where they intersect.

$y_1 = \sqrt{3x}$
$y_2 = |x - 2|$

(.62771868 , 1.3722813)
(6.3722813 , 4.3722813)

6. Graph the following.

$y = x^3 - .3x^2 - 4.78x + 2.76$

Evaluate the graph at the values of $x$.
$x = -3$ , $x = -2$ , $x = -1$
$x = 1$ , $x = 2$ , $x = 3$

Table of values.

| $x$ | $-3$ | $-2$ | $-1$ | $1$ | $2$ | $3$ |
|---|---|---|---|---|---|---|
| $y$ | $-12.6$ | $3.12$ | $6.24$ | $-1.32$ | $0$ | $12.72$ |

Use the **zero** or **root** feature to find where the graph intersects the $x$-axis.

$x = -2.3$
$x = 0.6$
$x = 2$

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Use **maximum** and **minimum** to find the top of the hills and the bottoms of the troughs

$(-1.166228\ ,\ 6.3403711)$
$(1.366228\ ,\ -1.780371)$

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7. Graph the following

$$y = x^5 + 1.5x^4 - 38.5x^3 - x^2 - 1.5x + 38.5$$

Use the following window settings and find where the graph intersects the $x$-axis

$x = -7$
$x = 1$
$x = 5.5$

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**xMin= -10**
**xMax=10**
**xScl=1**
**yMin= -500**
**yMax=500**
**yScl=50**

Use the following settings and find the tops and bottoms of the hills and troughs.

$(-5.437\ ,\ 2764.6)$
$(4.254954\ ,\ -1065.5)$

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**xMin= -10**
**xMax=10**
**xScl=1**
**yMin= -5000**
**yMax=5000**
**yScl=1000**