ALGEBRA 2 – Unit 3 / Day 7 Name _____
HOMEWORK: Quadratic Curve Fitting

1. Find the equation in standard form $\left(y = ax^2 + bx + c\right)$ of the parabola that passes through the points (1, 5), (3, 19), and (−2, 29). **Solve algebraically** and show all your work.

2. Given $f(x) = 2x^2 - 4$ and $g(x) = 5x + 3$, find…

a. $f(3a)$	**b.** $f(a + b)$
c. $f(5x + 3)$	**d.** $g(f(x)) = 23$

4. Use the following matrices and your brain (**NO CALCULATOR**).
If it can't be done, write undefined.

$$A=\begin{bmatrix}1 & -1\\ 3 & -2\end{bmatrix} \qquad B=\begin{bmatrix}0 & 2\\ -2 & 1\\ -1 & 0\end{bmatrix} \qquad C=\begin{bmatrix}3 & -3 & -1\\ 2 & -2 & 4\end{bmatrix} \qquad D=\begin{bmatrix}1 & 0\\ 0 & 1\end{bmatrix}$$

a. $3AB$

b. $2A+4D$

c. DA

d. BD

e. $BC+D$

9. The coordinates of the endpoints of $\overline{CD}$ in the standard (x, y) coordinate plane are $(-4,-2)$ and $(14,2)$. What is the *x*-coordinate of the midpoint of $\overline{CD}$?

A. 0	**B.** 2	**C.** 5	**D.** 9	**E.** 10

10. What is the surface area, in square units, of an 8 inch cube?

A. 512	**B.** 384	**C.** 320	**D.** 256	**E.** 192

8. **a.** Use the **algebraic strategies** you developed to solve the system of equations below.

$$x + y + z = 3$$
$$2x - y + 2z = 6$$
$$3x + 2y - z = 13$$

b. Solve the same system using matrices. Show your matrix equation and your solution. **Use your graphing calculators.**

IMPORTANT VOCABULARY for Unit 4:
(Answers to this section will be posted on Google Classroom. Use that to fill in this section.)

Monomial –

Polynomial –

The *Degree* of a Polynomial

A polynomial is in *Standard Form*

A polynomial is in *Factored Form*

A _____ of a polynomial is the _____ found by setting its

_____ equal to zero.

A polynomial has the _____ number of _____ as its _____.

The real root is also an _____ on the graph of the polynomial.

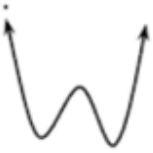
What is the maximum number of roots a polynomial of degree 3 can have? a polynomial of degree 8?

Is it possible for the graph of a polynomial to have fewer *x*-intercepts than its degree? Explain.

For each polynomial function, state the minimum degree its equation can have.

i. 

ii. 

iii. 

iv. 

How can you tell the minimum degree of a polynomial by the number of "bumps" on its graph?

End Behavior:

Orientation:
Right Arrow points up

Right Arrow points down

Degree:
Both Arrows Point in the Same Direction

Both Arrows Points in Different Directions