

Going Once, Going Twice...Sold!

Solving a System of Linear/Quadratic Functions



QUEST 2 ALGEBRA II

STATE FAIR OF TEXAS CURRICULUM

Every year the State Fair has an auction of project animals. These animals are raised by 4-H and FFA youth exhibitors from around the state. The goal of every youth is to raise an animal that goes for a premium price at the auction.



During this Live @ the Fair Quest, you will:

- ★ Compose a linear function from data you gather at the State Fair Livestock auction
- ★ Use an art project to design the “perfect” livestock animal, based on your research
- ★ Prepare a digital presentation on auctioneer careers.



Standards

- ★ Math Algebra 2 TEKS: A2.3.C
- ★ Art TEKS: Art I: 1A, 1D, 2A, 2F, 2A; Art II: 1D, 2D, 4A
- ★ ELAR TEKS: E3(15)(D), E3(21)(C), E3(23)(A), E3(25D)
- ★ Career Development TEKS: PS.2.B; PS.4.B; PS.5.B



A Guernsey Cow. Source:
<http://www.guernsey-butter.com/wp-content/uploads/sites/15/2014/10/40752600.jpg>

Before You Go – 30 min prep time, 60 min teaching time

- ★ Review putting linear functions into slope-intercept form
- ★ Teach using a calculator to find the point or points of intersection between a linear and quadratic function (could be 1, 2, or no point(s))
- ★ Teach solving the same system algebraically using substitution
- ★ Prepare quadratic functions to hand out when students return from the Fair (write 1/student or put students into pairs and give 1/pair)



Invitation

- ★ Take your free State Fair ticket and head out to gather information on the many different animals up for auction.



Plan Your Route

- ★ Head over to the Livestock Judging Pavilion
- ★ Visit the cattle, horse, and swine barns
- ★ Finally peruse the poultry building

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STATE FAIR MAP



Optional Materials to Bring

- ★ Pen or Pencil
- ★ Notebook or Paper
- ★ Smartphone or Tablet



While You're There

The objective of your visit is to enjoy the auction while recording the final price of each.

- ★ **GOING ONCE, GOING TWICE, SOLD!:** Use the sale price from 2 animals at the Fair to write a linear function.
 - o Check out the animals up for auction at the Fair
 - o Go to the auction and record the price at which each animal is sold
 - o Pick your 2 favorites (don't lose your data of all animals)
 - o You can record your data on a device, a notebook, or use this table:

Name of Animal	Auction Price

- ★ **THE "PERFECT" ANIMAL:** As you make your way through the Livestock pavilions, look for animals that have won ribbons.
 - o How are they different from the others of their breed?
 - o Is there anything that stands out to you?
 - o If possible, interview some of the human participants and ask them what the judges are looking for in their animals in terms of appearance.
 - o Be sure to take photographs or create sketches of these animals.



After the Fair – 50 min project

When you return to class following your State Fair visit, you will:

- ★ Use the sale price of your 2 favorite animals to write a linear function
- ★ Pass out a quadratic function to each student or pair
- ★ Show all work to solve the system of linear and quadratic function
- ★ Use the graphing calculator to check your system for correct solution
- ★ Provide the graph of the system on the same page as your work to turn in

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ART PORTION

Before You Go

Each year, the livestock show at the State Fair of Texas highlights animals that are deemed the "best" of their breed.

- ★ There are many categories including, but not limited to, pigs, steer, goats, rabbits, and chickens.
- ★ There are a number of areas that these animals are judged on, but nevertheless, appearance is everything!
- ★ Take some time to look through the following link at some of the criteria for entering animals in the State Fair of Texas Livestock Competition.
 - o <http://bigtex.com/livestock/livestockshow/>
 - o Be sure to look through some of the images of the animals to get an idea of what it considered "good".

While You're There

See the main portion of the Quest for instructions.

When You Return

For your project, you will create the "perfect" livestock animal.

- ★ You can either choose to recreate an animal that is actually at the livestock show, or you can create your own!
- ★ When you have finished with your work, create a list of criteria that your animal meets that deems it grand champion worthy.
- ★ When you present your work to your peers, be sure to go over the criteria and describe your creative choices in making sure that your animal met those standards.



ENGLISH PORTION

Auctioneers speak at a fast pace, but they also speak clearly and concisely so that everyone at the auction can tell exactly when the price is being raised and by how much. Talking at such a fast pace is not a skill that comes naturally, and becoming an auctioneer takes work.

Using your computer or tablet, research auctioneer careers and prepare a PowerPoint or Prezi presentation to present to the class. The presentation should contain:

- ★ At least 10 slides (including one introduction and one conclusion slide)
- ★ Information on:
 - a) Who can be an auctioneer
 - b) Education and experience requirements
 - c) Potential job opportunities
 - d) Salary information
 - e) One video clip of an auctioneer at work
 - f) Information on famous auctioneers
- ★ A least five different sources and cite information using MLA format.