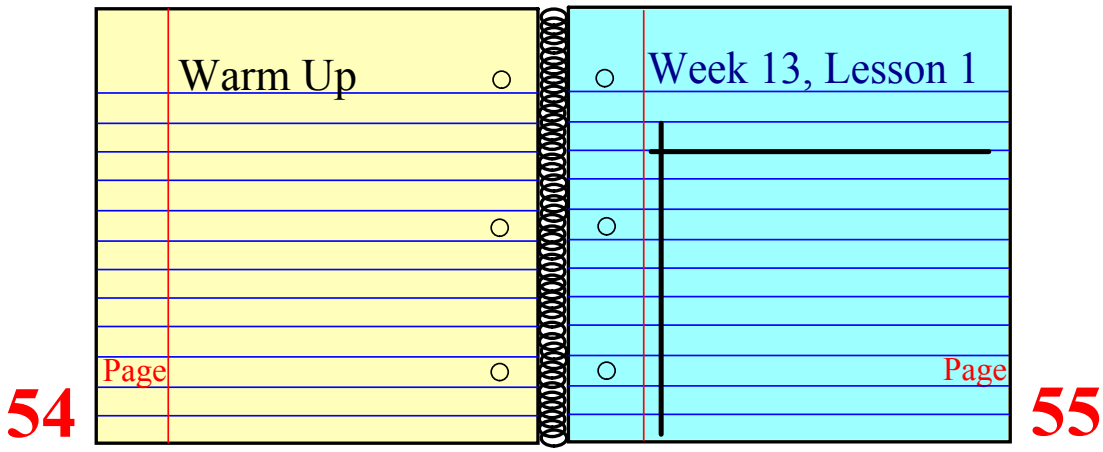

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EQ: Can I find the vertex by completing the square? (A-SSE.3b)

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Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-

Warm-up:

1. When the directions say to *factor*, what does your answer look like?

2. When the directions say to *solve*, what does your answer look like?

3. When the directions say to *find the zeroes*, what does your answer look like?

$$2x^2 + x - 15$$

4. Factor

$$4x^2 + 4x - 3$$

5. Solve

$$4x^2 + 4x - 3$$

Notes Notes

Quadratic Formula

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(A-REI.4b)

Standard Form: $ax^2 + bx + c$

ALL quadratics can be solved using the ***Quadratic Formula***

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Plug *a, b,* and *c* into the quadratic formula and simplify.

Examples:

$2x^2 + 7x - 4$ ($a=2$, $b=7$, $c=-4$)

$X = \frac{-7 \pm \sqrt{7^2 - 4(2)(-4)}}{2(2)}$

$\frac{-7 \pm \sqrt{49+32}}{4}$

$\frac{-7 \pm \sqrt{81}}{4}$

$\frac{-7 \pm 9}{4}$

$\frac{-7+9}{4}, \frac{-7-9}{4}$

$\frac{2}{4}, \frac{-16}{4}$

$X = \frac{1}{2}, -4$

$x^2 - 5x + 2$ ($a=1$, $b=-5$, $c=2$)

$X = \frac{-(-5) \pm \sqrt{-5^2 - 4(1)(2)}}{2(1)}$

$\frac{5 \pm \sqrt{25-8}}{2}$

$\frac{5 \pm \sqrt{17}}{2}$

$X = \frac{5+\sqrt{17}}{2}, \frac{5-\sqrt{17}}{2}$

Summary:

ICA: Solve the quadratics using the Quadratic Formula.

1. $x^2 - 4x + 3 = 0$

3. $7x^2 + 8x + 1 = 0$

4. $-3x^2 + 2x + 8 = 0$

5. $8x^2 + 6x - 1 = 0$

ICA:

1. What are the zeroes?

$(3x+1)(4x-5)=0$

2. What are the zeroes?

$2x^2 + x - 10=0$

3. Factor the expression.

$x^2 + 5x - 24$

Explain how to use those factors to find the zeroes.

4. Solve the quadratic.

$6x^2 - 20x - 16 = 0$

5. Solve the quadratic.

$100x^2 = 49$

6. Solve the quadratic.

$x^2 - 12 = -4x$

7. Solve the quadratic.

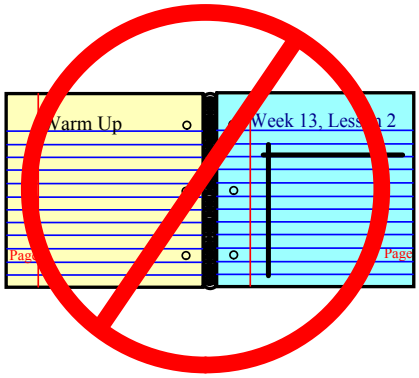
$25x^2 - 81 = 0$

8. Solve the quadratic.

$2x^2 + 16x + 32 = 0$

Closure

Write a summary on your notes.



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EQ:

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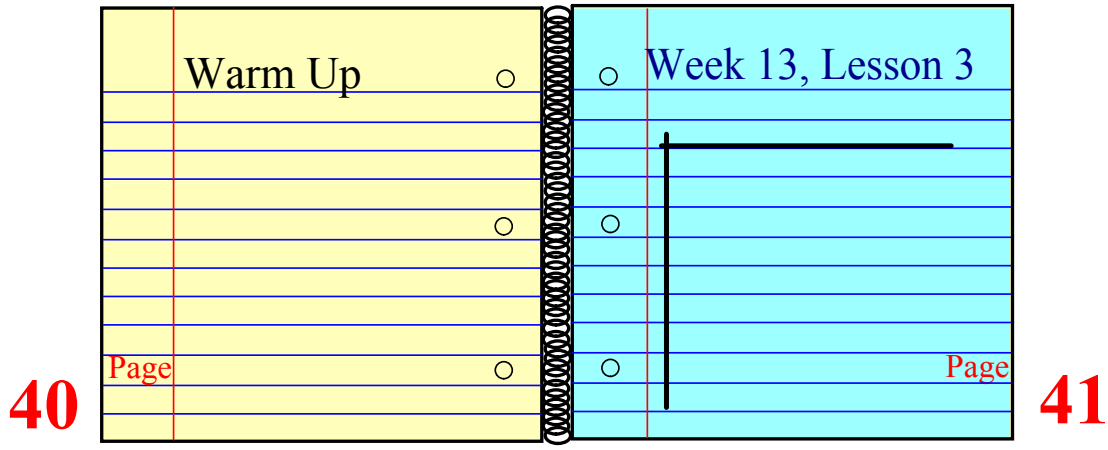
Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-

Warm-up:

Unit 5 Part 2 Review with Answer Key.doc



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EQ: Can I determine between a maximum and a minimum? (A-SSE.3b)

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Warm-up:

1. Find the Vertex

   $y = x^2 + 12x + 20$

2. Solve

   $x^2 - 8x - 9$

3. Factor

   $3x^2 - 5x - 12$

ICA:

The equation $h = -12t^2 + 59t + 5$ gives the height h, in feet, of a softball as a function of time t, in seconds, after it is hit.

$y = -12x^2 + 59x + 5$

What is the maximum height the softball reaches? Round your answer to the nearest tenth of a foot.

Plug into calculator

(Seconds, Feet)

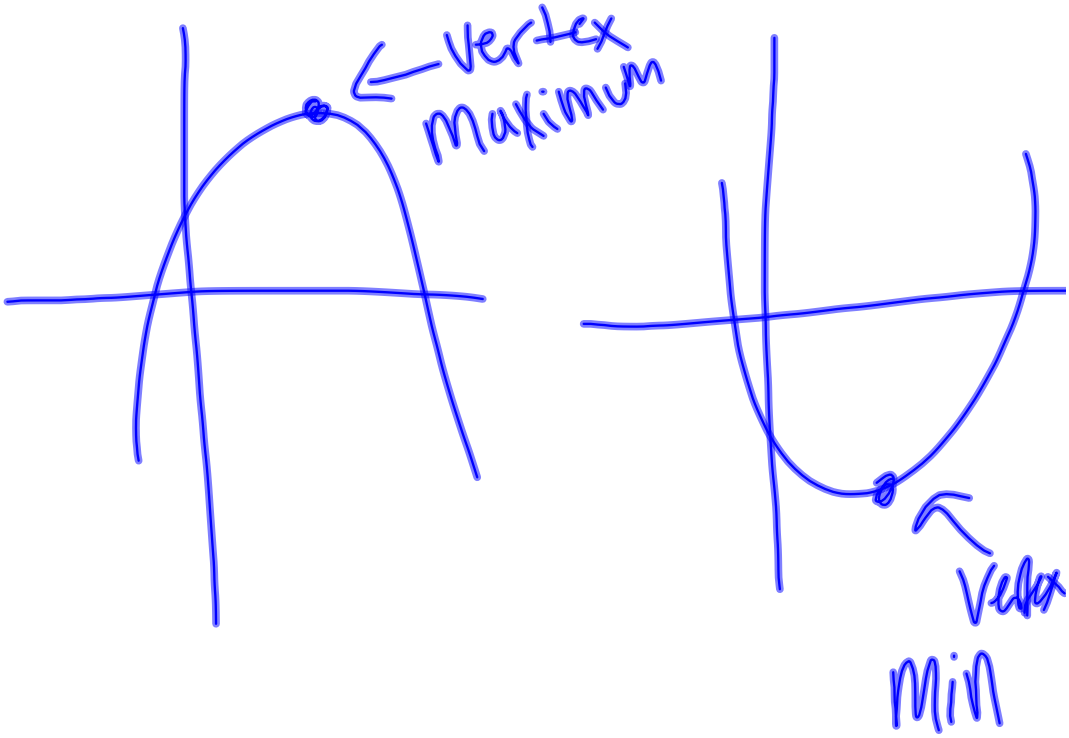
(2.46, 77.5)

77.5 feet

Brian threw a football to his friend. The quadratic function that models the height, in feet, of the ball after t seconds is

$$h(t) = -5t^2 + 9t + 12$$

If his friend catches the ball when it is 4 *ft* above the ground, how long is the ball in the air?


Vertex
Maximum
Vertex
Min

ICA:

1. What are the zeroes?

$(3x + 1)(4x - 5)=0$

2. What are the zeroes?

$2x^2 + x - 10=0$

3. Factor the expression.

$x^2 + 5x - 24$

Explain how to use those factors to find the zeroes.

4. Does $f(x) = -2(x-7)^2 + 3$ have a maximum or a minimum and what are the coordinates?

5. Rewrite $g(x) = x^2 + 8x + 20$ in vertex form. Does it have a maximum or a minimum and what are the coordinates?

5. Solve the quadratic.

$6x^2 - 20x - 16 = 0$

6. Solve the quadratic.

$100x^2 = 49$

7. Solve the quadratic.

$x^2 - 12 = -4x$

8. Solve the quadratic.

$25x^2 - 81 = 0$

9. Solve the quadratic.

$2x^2 + 16x + 32 = 0$

10. Solve the quadratic.

$x^2 - 5x + 3 = 0$

ICA:

Expand the following expression $\left(5x^2\right)(2x+4)$

Expand the following expression $(4x-3)(5x+8)$.

Expand the following expression $(2x+4)^2$.

Expand the following expression
$(3y-8)\left(y^2+3y-5\right)$.

Expand the following expression
$(3t^2+4t-6)(2t^2-6t+3)$.

ALG 2 - Week 13

Lesson Plan: Week 11, Lesson 4

Content Objectives:

Number and Quantity

The Real Number System (N-RN)

- Extend the properties of exponents to rational exponents
- Use properties of rational and irrational numbers.

Quantities (N-Q)

- Reason quantitatively and use units to solve problems

Algebra

Seeing Structure in Expressions (A-SSE)

- Interpret the structure of expressions
- Write expressions in equivalent forms to solve problems

Arithmetic with Polynomials and Rational Expressions (A-APR)

- Perform arithmetic operations on polynomials
- Understand the relationship between zeros and factors of polynomials
- Use polynomial identities to solve problems
- Rewrite rational expressions

Creating Equations (A-CED)

- Create equations that describe numbers or relationships

Reasoning with Equations and Inequalities (A-REI)

- Understand solving equations as a process of reasoning and explain the reasoning
- Solve equations and inequalities in one variable
- Solve systems of equations
- Represent and solve equations and inequalities graphically

Functions

Interpreting Functions (F-IF)

- Understand the concept of a function and use function notation
- Interpret functions that arise in applications in terms of the context
- Analyze functions using different representations

Building Functions (F-BF)

- Build a function that models a relationship between two quantities
- Build new functions from existing functions

Linear, Quadratic, and Exponential Models (F-LE)

- Construct and compare linear, quadratic, and exponential models and solve problems
- Interpret expressions for functions in terms of the situation they model

Statistics and Probability

Interpreting Categorical and Quantitative Data (S-ID)

- Summarize, represent, and interpret data on a single count or measurement variable
- Summarize, represent, and interpret data on two categorical and quantitative variables
- Interpret linear models

Mathematical Practices (MP)

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Language Objectives:

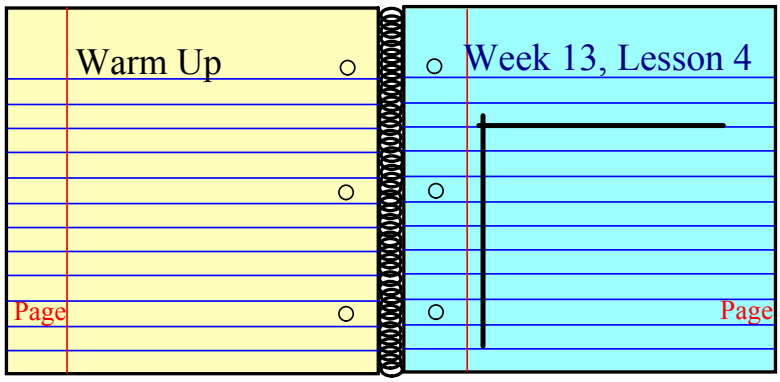
classify	compare	compose	contrast	define
demonstrate	describe	discuss	edit	elaborate
evaluate	experiment	explain	identify	interview
investigate	justify	label	list	listen
match	name	paraphrase	predict	present
rephrase	restate	rewrite	state	summarize

present your point of view

Materials Needed:

Calculators	Colored Pencils	Colored Pens	Compass	Flash Light
Graph Paper	Hi-Lighters	Index Cards	Navigator	Pattern Blocks
Protractor	Ruler	Scissors	Staplers	Staple Remover
Straws	String	Tape	Tape Measure	Tangrams
Worksheet	Yard Stick	Washers		

Activities/Directions:



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EQ: Can I factor quadratics to reveal the zeros and sketch a graph? (A-SSE.3a)

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Warm Up:

1. Rewrite $g(x) = x^2 + 8x + 20$ in vertex form. Does it have a maximum or a minimum and what are the coordinates?

2. Solve

   $x^2 - 12 = -4x$

3. Solve

   $100x^2 = 49$

ALG 2 - Week 13

ICA:

Students were given this work sheet.

1. Multiply:

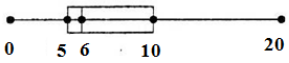
$(4x + 3)^2$

2. Solve by taking the square root on both sides.

(a) $3x^2 - 16 = 8$

(b) $x^2 = -49$

3. The box-and-whisker plot represents the scores on a quiz in your Algebra class. Which of the following is a reasonable assumption based on the plot?



A. The mean score on the quiz was 6.
B. The highest score on the quiz was 10.
C. 25% of the class scored higher than 10 on the quiz.
D. 50% of the class scored less than 10 on the quiz.

4. Which of the following is equal to $(x^2 - 8x + 9) + (-4x^2 + 8x - 6)$?

A. $-3x^2 + 3$

B. $5x^2 + 3$

C. $-3x^2 - 16x + 3$

D. $5x^2 - 16x + 15$

5. Which is the correct factored form of the trinomial?

$3x^2 + 2x - 8$

A. $(x - 4)(x + 6)$

B. $(x + 4)(x - 6)$

C. $(3x - 4)(x + 2)$

D. $(3x + 4)(x - 2)$

6. Using the list of numbers, find the mean, median, mode, and the range. Which measure gives you the highest result?

19, 23, 19, 17, 19, 21, 18, 24

Solve the following quadratic equations using any method you choose.

7. $x^2 + 2x - 15 = 0$

8. $x^2 - 25 = 0$

9. $3x^2 + 11x = 4$

10. $x^2 - 4x = 7$

11. $x^2 - 49 = 0$

12. $6x^2 - 4x = 0$

13. $2x^2 - 50 = 0$

14. $2x^2 + 5x = -33$

ICA:

1. What operation always joins a variable and its coefficient in an algebraic expression?

2. Classify each of the following as a monomial, binomial or a trinomial.

a. $x+1$

b. $5-x^2$

c. x^2-x-1

d. $2x$

3. Explain the meaning of the exponent 2 in the algebraic expression $(3x+y)^2$.

4. Describe the error Kate made when simplifying the expression shown. $2(5x+6)=10x+6$

Attachments

ALG 2 - Week 11 Checkpoint Quiz.docx

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Unit 5 Part 2 Review with Answer Key.doc

Day_12_homework_7.doc

Unit 5 Part 2 Assignment.doc