

# Welcome to Back to School Night

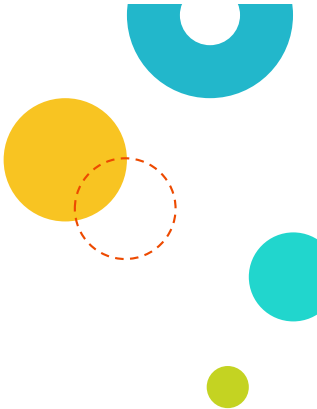


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# Agenda

- About the teacher
  - General Course information
  - Class Materials
  - Grading Policy
  - Homework
  - Test Corrections
  - Problem Solving
  - Office Hours/ Extra Help
  - Final thought
- 

# About the Teacher...

## Education

BA in Mathematics (Lehigh University)

Masters in Teaching (Westminster College)

## Career Background

- 3 years as a Civilian Operations Research Analyst for the US Navy
- This is my 11<sup>th</sup> year at Ben Franklin Academy

## Interests

Travelling, reading, playing ice hockey, hiking, skiing, learning new things



# My “why’s”



## Why Math?

I’m a problem solver at heart!



*“Mathematicians aren’t people who find math easy. They’re the people who enjoy how hard it is.”*

## Why Teaching?

Growing up, my teachers inspired me to love learning and I hope to be the same spark for my students, and give them the confidence to chase their dreams.

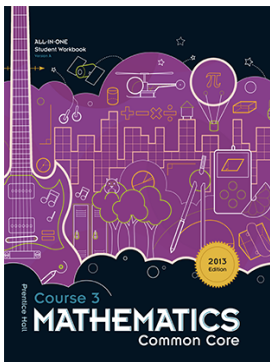
## Why 8<sup>th</sup> Grade?

Every day is filled with fun, energy, laughter, creativity, and curiosity.

I embrace the challenge of helping students navigate their middle school years and prepare them to be successful in high school.

# 8<sup>th</sup> grade Math

## Topics



Real Numbers & the Coordinate Plane  
Solving Linear Equations  
Introduction to Functions  
Graphing Functions  
Systems of Linear Equations  
Exponents  
Geometry and Measurement  
Transformations  
Data Analysis

In-depth focus on  
Pre-Algebra concepts  
to prepare students for  
Algebra I next year

The Number  
System

Functions

Expressions  
& Equations

Geometry

Statistics &  
Probability

# Algebra 1

- Comprehensive course that is equivalent to a full-year high school Algebra I class
- Successful completion of this course will allow students to move on to Geometry next year



## Topics Include:

**Simplifying Expressions**

**Equations and Inequalities**

**Systems of Equations & Inequalities**

**Functions and their Graphs**

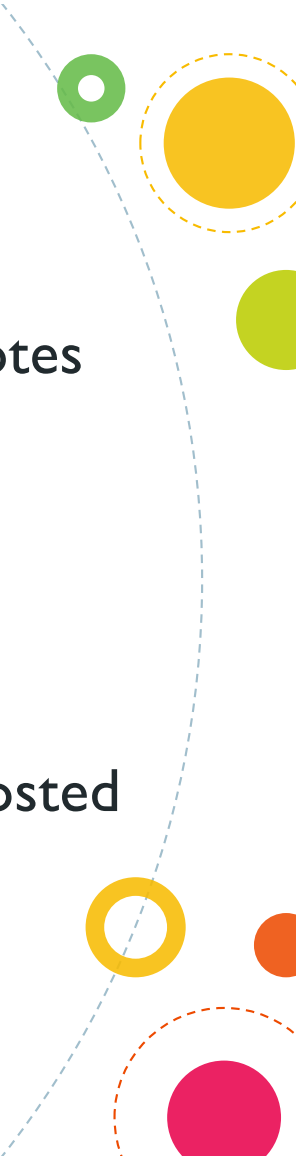
**Polynomials and Factoring**

**Quadratic Equations**

**Exponential Functions and Radical Equations**

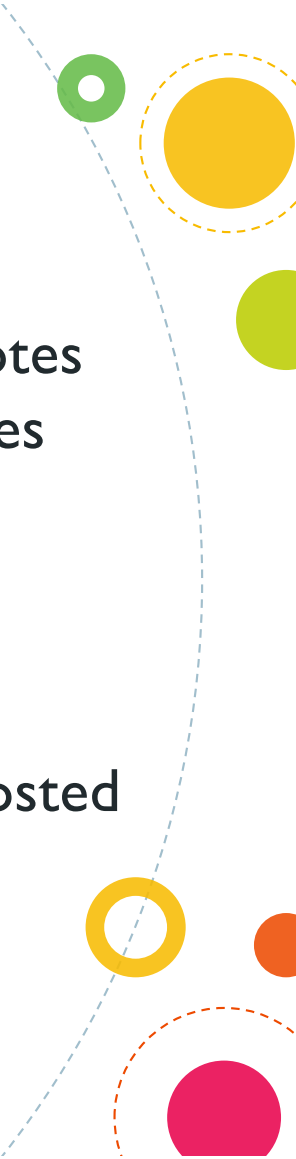


# Course 3 Resources

- **Spiral-bound notebook** with fill-in-the-blank notes for the year, which include examples and practice problems
  - Copy of **textbook** to keep at home  
(Scanned copies of the textbook are also in Google Classroom and on the 8<sup>th</sup> grade website)
  - **Instructional videos, notes, and materials** posted in Google classroom
- 



# Algebra Resources

- **Spiral-bound notebook** with fill-in-the-blank notes for the year (half at a time), which include examples and practice problems
  - Copy of **textbook** to keep at home  
(Scanned copies of the textbook are also in Google Classroom and on the 8<sup>th</sup> grade website)
  - **Instructional videos, notes, and materials** posted in Google classroom
- 



# 1-2: Evaluate Expressions

## Evaluate an Algebraic Expression

- Replace a variable with a given number (also called substituting numbers for variables) then simplify the expression using order of operations
  - Always use parentheses when plugging in a number

### EXAMPLE #1:

What is the value of the expression for  $x = 5$  and  $y = 2$ ?

$$x^2 + x - 12 \div y^2$$

### EXAMPLE #2:

What is the value of the expression for  $x = 3$  and  $y = 4$ ?

$$2x^2 - xy + y$$

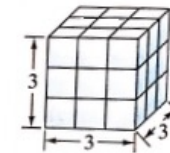
# Sample Notes

## 1-3: Cube Roots

**Perfect Cube:** a number that is the cube of a whole number

### EXAMPLE:

27 is a perfect cube since  $3^3 = 3 \cdot 3 \cdot 3 = 27$ .



The **Cube Root** of a number: a number that when used as a factor three times, is equal to the given number.

### EXAMPLE #1:

The cube root of 27 is 3 because  $3^3 = (3)(3)(3) = 27$

$$\sqrt[3]{27} = 3$$

### EXAMPLE #2:

What is the cube root of  $-1,000$ ?

$$\sqrt[3]{-1000} =$$

### Perfect Cubes:

n	n <sup>3</sup>
1	1
2	8
3	27
4	64
5	125
6	216
7	343
8	512
9	729
10	1,000

# Classroom Set of Graphing Calculators

Algebra students will learn how to use a graphing calculator (starting around the end of October)

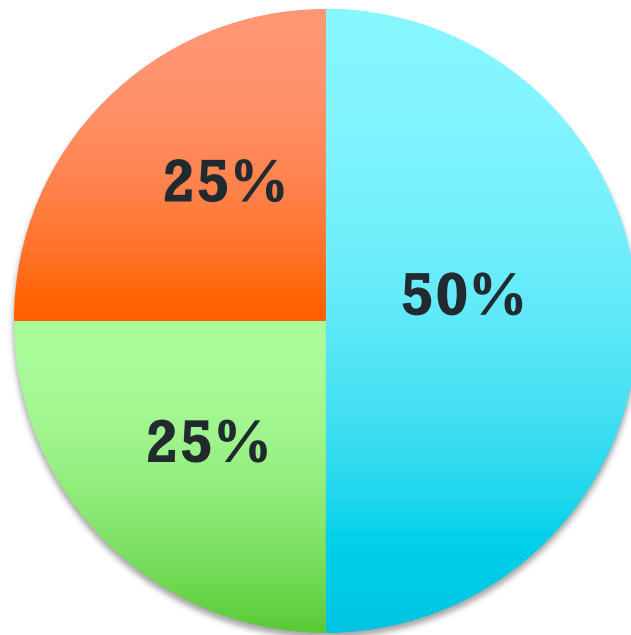
- Basic functions and algebraic applications
- A great opportunity for students to become familiar with the calculator in preparation for high school
- Same calculator for high school, SAT/ACT, college-level coursework, etc.

**Note:** Graphing calculators will not be used for quizzes or tests



TI-84 Plus CE

# Grading Policy



■ Tests (50%)

■ Quizzes and Projects (25%)

■ Homework & Classwork (25%)



# Homework

- Individual practice of concepts we cover in class
- **Points earned based on showing all work and correct answers**
  - If a problem is not understood, key information must be written down along with a specific question or an initial attempt
  - Answer keys will be provided in class (immediate feedback)
  - Students will have an **opportunity to make corrections and ask questions before turning in**

# Lesson 1-1 #7-31 odd, 39

7.  $\frac{15 \div 5}{20 \div 5} = \frac{3}{4}$

$$\begin{array}{r} 0.75 \\ 4 \overline{) 3.00} \\ \underline{-28} \phantom{0} \\ 20 \\ \underline{-20} \\ 0 \end{array}$$

0.75

9.  $-\frac{40}{60} \div 10 = -\frac{4}{6} \div 2 = -\frac{2}{3}$

$$\begin{array}{r} 0.66\dots \\ 3 \overline{) 2.00} \\ \underline{-18} \phantom{0} \\ 20 \\ \underline{-18} \\ 2 \end{array}$$

don't forget the negative sign!

-0.6

11.  $\frac{20}{100} \div 20 = \frac{1}{5}$

$$\begin{array}{r} 0.2 \\ 5 \overline{) 1.0} \\ \underline{-10} \\ 0 \end{array}$$

0.2

13.  $-\frac{4}{10} = -0.4$

$0.3636\dots$

15.  $\frac{2}{3}$

$$\begin{array}{r} 0.66\dots \\ 3 \overline{) 2.00} \\ \underline{-18} \phantom{0} \\ 20 \\ \underline{-18} \\ 2 \end{array}$$

0.6

17.  $\frac{17}{16}$

$$\begin{array}{r} 1.0625 \\ 16 \overline{) 17.0000} \\ \underline{-16} \phantom{0000} \\ 100 \phantom{00} \\ \underline{-96} \phantom{00} \\ 40 \phantom{0} \\ \underline{-32} \phantom{0} \\ 80 \\ \underline{-80} \\ 0 \end{array}$$

1.0625

19.  $-\frac{13}{6}$

$$\begin{array}{r} 2.166\dots \\ 6 \overline{) 13.000} \\ \underline{-12} \phantom{000} \\ 10 \phantom{00} \\ \underline{-6} \phantom{00} \\ 40 \phantom{0} \\ \underline{-36} \phantom{0} \\ 40 \\ \underline{-36} \\ 4 \end{array}$$

-2.16

Lesson 1-2 # 1-3 all, 10, 11, 17-24 all, 37-42 all

Optional Challenge:  
#56-59 all

$$1. 5^2 = 5 \cdot 5 = 25$$

25

$$2. 2^3 = 2 \cdot 2 \cdot 2 = 8$$

8

$$3. \left(\frac{3}{4}\right)^2 = \frac{3}{4} \cdot \frac{3}{4} = \frac{9}{16}$$

$\frac{9}{16}$

$$10. 4^3 = 4 \cdot 4 \cdot 4 = 64$$

64

$$11. 2^4 = 2 \cdot 2 \cdot 2 \cdot 2 = 16$$

16

$$17. \frac{20 - 2 \cdot 3^2}{20 - 2 \cdot 9} = \frac{20 - 18}{2} = \frac{2}{2} = 1$$

1

$$18. \frac{6 + 4 \div 2 + 3}{6 + 2 + 3} = \frac{8 + 3}{11} = \frac{11}{11} = 1$$

1

$$19. \frac{(6^2 - 3^3) \div 2}{(36 - 27) \div 2} = \frac{9 \div 2}{4.5} = 4.5 \text{ or } 4\frac{1}{2}$$

4.5 or 4½

$$22. \frac{52 + 8^2 - 3(4-2)^3}{52 + 8^2 - 3(2)^3} = \frac{52 + 64 - 3(8)}{52 + 64 - 24} = \frac{116 - 24}{92} = \frac{92}{92} = 1$$

1

$$23. \frac{6^4 \div 3^2}{9} = \frac{1296 \div 9}{9} = \frac{144}{9} = 16$$

16

$$24. \frac{2 \cdot 7 + 4}{9 \div 3} = \frac{14 + 4}{3} = \frac{18}{3} = 6$$

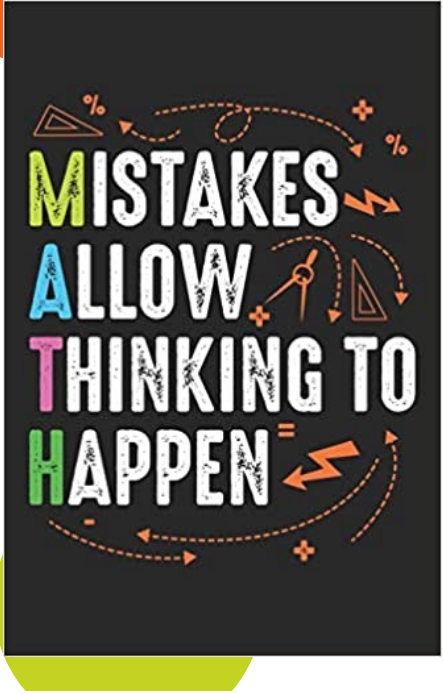
6

$$37. \frac{2[(8-4)^5 \div 8]}{2[(4)^5 \div 8]} = \frac{2[1024 \div 8]}{2(128)} = \frac{256}{256} = 1$$

1

## Test Corrections

- **2 test corrections allowed (per trimester) for credit**
  - Earn back up to half the points originally lost.
- Due prior to the next chapter test
- Use the test correction form
  - Identify and explain mistake
  - Correct work with correct answer
- Follow the guidelines/examples provided to complete the corrections.



**MISTAKES  
ALLOW  
THINKING TO  
HAPPEN**

Problem Number: ○

**Correctly solve the problem below.**  
Show all work or explain.

Graph Attached?  
 Yes  No

---

**Correct Answer:**

### Error Analysis

Type of error:

- |                                      |                                     |
|--------------------------------------|-------------------------------------|
| <input type="checkbox"/> Computation | <input type="checkbox"/> Conceptual |
| <input type="checkbox"/> Precision   | <input type="checkbox"/> Careless   |

Explain your mistake:



## OBJECTIVE

Use all of the numbers 1, 2, 3, and 4, to create an expression that equals each of the numbers from 1 to 24.

**For example:**

$$10 = 1 + 3 + 2 + 4$$

$$10 = (4 * 2) + (3 - 1)$$

$$10 = 3^2 + 1^4$$

## Problem Solving Challenges

- Number challenges
- Problem solving tasks – individual and group activities
- Puzzles

Emphasis on the problem solving process, using different tools/strategies, communicating ideas, teamwork, critical thinking, and applying concepts we've learned.



# Extra Help

**Office Hours: Tuesday and Thursday**  
7:30 to 8:00 am (by appointment)

or  
**Advisory time**



# One final thought...

- “There’s no such thing as a math person. Everybody can grow and change their brains and learn every level of math. And this myth that people are born with the math brain is very important to get rid of.”

~ Jo Boaler



**Thank you!**



**Any questions?**

Email me at [Ldychus@bfacademy.org](mailto:Ldychus@bfacademy.org)