College Algebra (1215,1220) Prep

ENGINEERING STUDENT SUCCESS CENTER

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Drop-In Tutoring for Engineering & Computing

Get help in your core STEM courses, engineering & computing specific classes, software, and coding languages.

ESS suite (CEC 2080) & online via Zoom

Tutoring schedule & more info at
ess.unm.edu/services/tutoring/

or through our web-app - succESS

CENTER FOR TEACHING & LEARNING

ctl.unm.edu

STEM Tutoring

Writing Tutoring
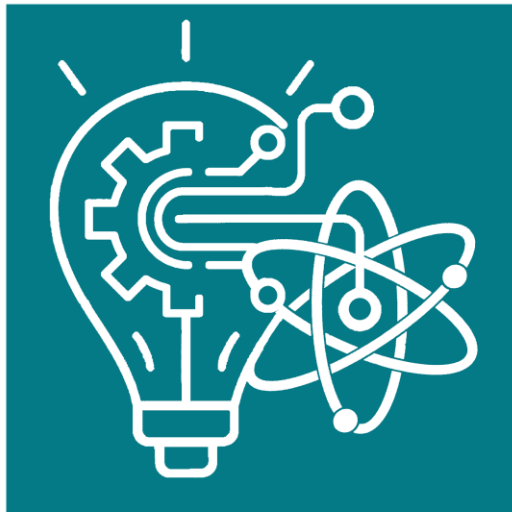
Conversation Groups

Learning Strategies

3rd floor Zimmerman Library

ENGINEERING STUDENT SUCCESS CENTER

A tool for engineering your

succESS

This web **APP** allows you to keep up to date on all we have to offer.

Put your learning into your own hands.

success.unm.edu

Includes 1-click RSVP

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ENGINEERING STUDENT SUCCESS CENTER

You are WELCOME to ALL events

Spring 2023 Events
We are Student Success

Pre-Semester Prep Series
Trig/Pre-Calc through Calc 3, Chem 1, Physics 1

Semester Long Programs
Mentoring, Internships, Research

Presentation Prep Series
What is a Conference?
Designing Effective Presentations
Data Visualization
Delivering Presentations

1st & 2nd Year Student Events
STEM Mixer & Find Your Pack
Study Skills
Manage Your Time
How to make the most of your learning
How to learn from failure
Intro to Python
UROC - Attendance Participation
Coffee hour with Faculty

Spatial Visualization Series
Orthographic Views & Isometric Drawing
One-Axis and Two-Axis Rotations
Incl. Planes & Curved Surfaces, Reflect. Sym., & Write a Rule

Career and Professional Development Events
Resumes and Cover Letters
Building Connections & Networking
Landing an internship
Interviewing Basics
So, What's Next? Start-Ups, Patents, and Publications
...and industry site visits...

Lab Safety Series
Hazard Communication & Hazard Evaluation
Hierarchy of Controls & Basics of PPE
Chemical Waste Management

WIN a gift card. **GAIN** experience.
BUILD your skill set. **ENHANCE** your resume.

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And more! For more details, visit:
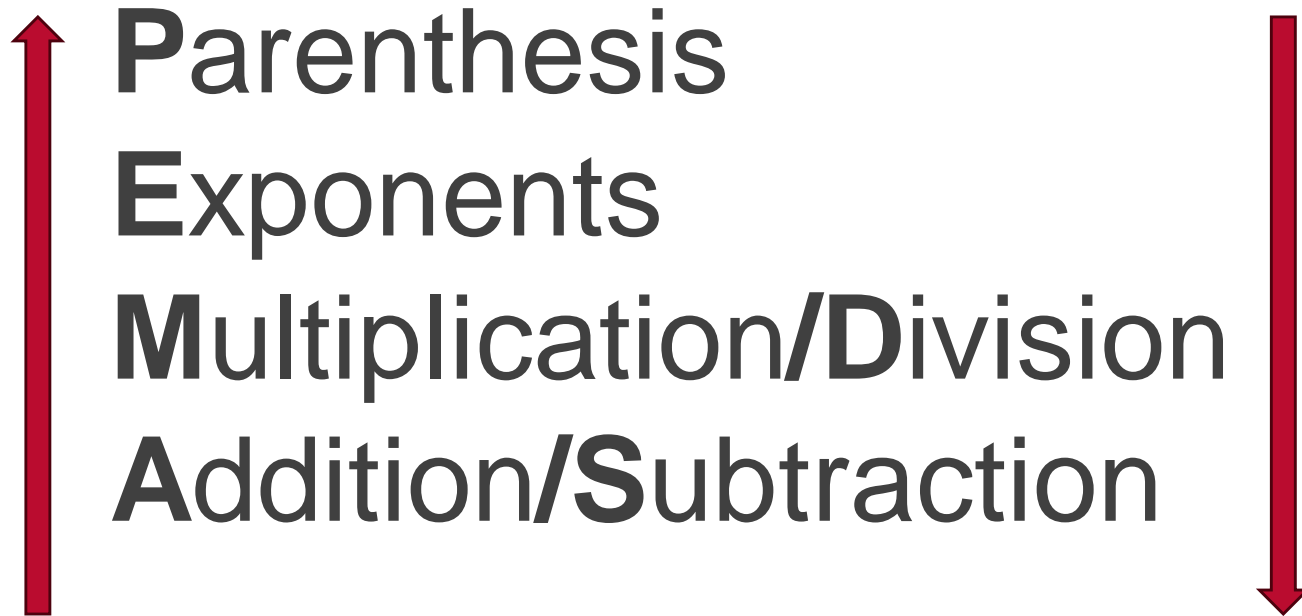ess.unm.edu/events *OR* through our web-app - succESS

Contents

- Order of Operations
- Fractions
- Solving One and Two Step Equations
- Strategies for Solving Word Problems
- Graphing

Order of Operations

Parenthesis
Exponents
Multiplication**/D**ivision
Addition**/S**ubtraction

Order of Operations Tips

- After parentheses and exponents, work left to right
  - Multiplication and division are equivalent!
  - Addition and subtraction are equivalent!
- Sometimes parentheses mean multiplication
- Use fraction notation rather than division symbol
  - $\frac{21}{7} = 3$ not $21 \div 7 = 3$

Rewrite Equations

$6 \div 2(1 + 2) =$

Rewrite Equations

$$6 \div 2(1 + 2) =$$

$$\frac{6}{2(1+2)} = \qquad\qquad 6 \div 2 \times (1 + 2) =$$

Fraction Math

o Adding/Subtracting Fractions
  o Need a **common denominator**
  o Use special forms of one

o Multiplying Fractions
  o Multiply numerators and denominators straight across

o Dividing Fractions
  o Multiply by reciprocal of divisor
  o **Keep, Change, Flip**

o **Reduce, reduce, reduce!**

Fraction Math

Adding Fractions

$$\frac{14}{3} + \frac{9}{21}$$

Multiplying Fractions

$$\frac{3}{4} \times \frac{5}{6}$$

Dividing Fractions

$$\frac{1}{2} \div \frac{4}{3}$$

Solving Equations

- Use Reverse Order of Operations
  - Addition/Subtraction
  - Multiplication/Division
  - Exponents
  - Parentheses

- "Unwrapping" the variable

3x+4(1+x)=25

Strategies for Solving Word Problems

1. Understand the problem

2. Gather information
   1. Represent numbers with variables
   2. Write a mathematical expression

3. Solve the problem

4. Check your work

1. Understand the problem

The rate to rent a car is $30 per day, plus 50 cents per mile. Carlos rented a car for his 2-day long vacation. When he returned the car, the bill was $360. How many miles did he drive?

2. Gather Information

The rate to rent a car is $30 per day, plus 50 cents per mile. Carlos rented a car for his 2-day long vacation. When he returned the car, the bill was $360. How many miles did he drive?

3. Solve the Problem

The rate to rent a car is $30 per day, plus 50 cents per mile. Carlos rented a car for his 2-day long vacation. When he returned the car, the bill was $360. How many miles did he drive?

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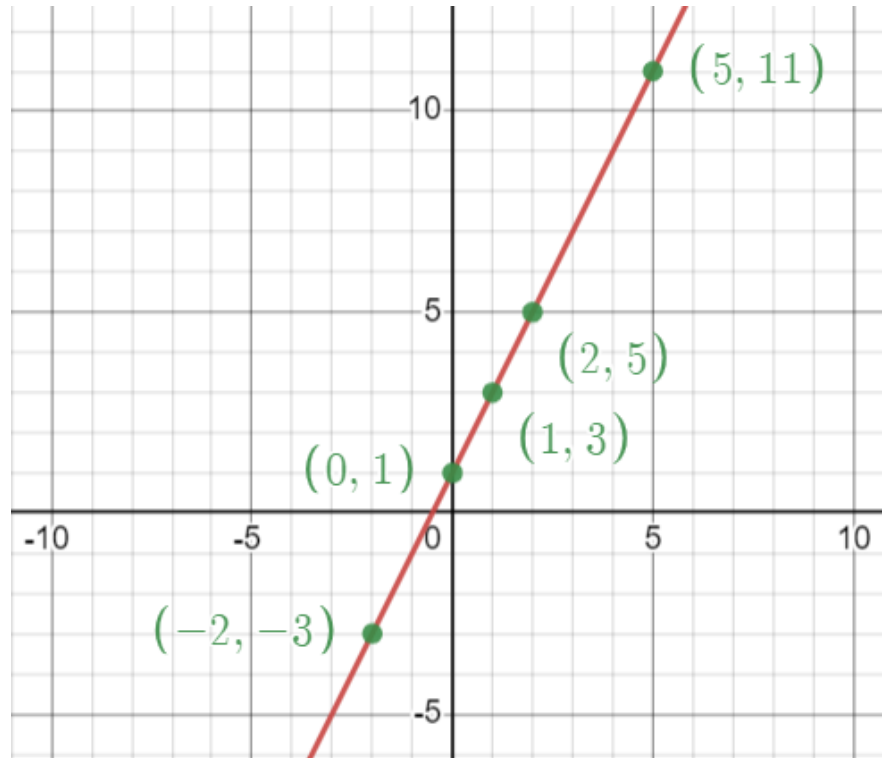
Graphing

- XY table
- Point/slope
- Important Points
- y=mx+b

Using an XY Table

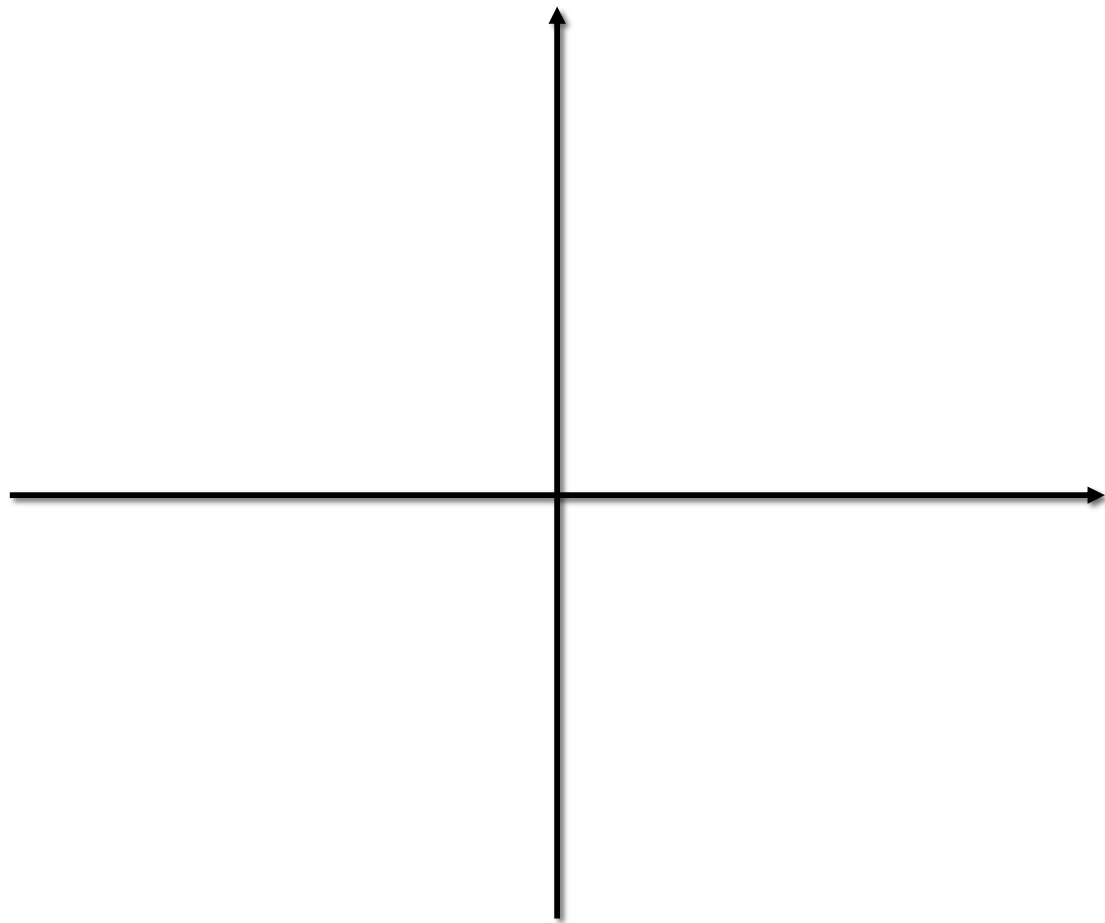| x	y
-2	-3
0	1
1	3
2	5

Graphing Using Point and Slope

- "Rise over run"
  - $\frac{2}{3}, \frac{-1}{4}, 7$

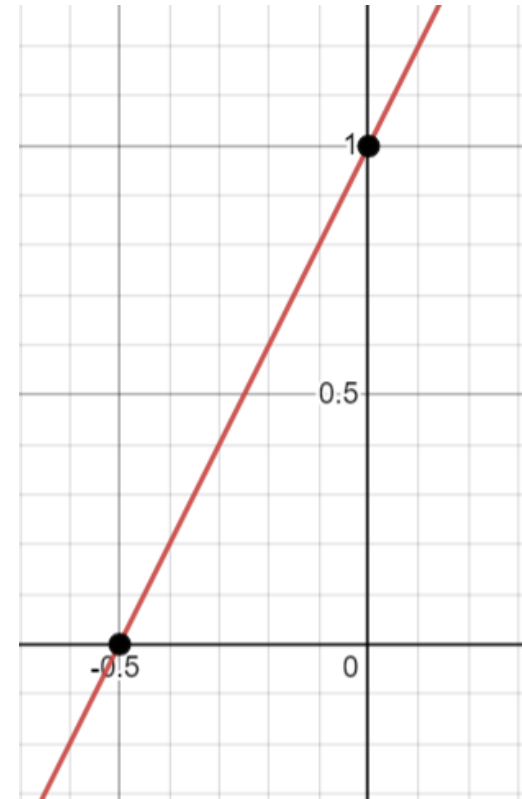- Slope: $\frac{y_2 - y_1}{x_2 - x_1}$ $(x_1, y_1), (x_2, y_2)$
  - Calculate the slope of the line that goes between the points
    - (1,3) and (4,12)
    - (5,10) and (0,25)

Important Points

- Y-intercept
  - x=0
  - where the line crosses the y-axis
- X-intercept
  - y=0
  - where the line crosses the x-axis

Finding Intercepts

$y = 2x + 1$

Putting it all together

- Equation of a line: $y = mx + b$
- m = slope
- b = y intercept

Graph the equation $y = -x + 4$

Study Tips

What you can do before the semester

Mentality	Be proactive
Review	Review the self-evaluation
Explore	Explore online resources
Converse	Talk to your professor and TA
Locate	Find resources on campus, such as CTL and tutoring
Study	Form a study group, develop a study plan

Throughout the semester

GO TO CLASS

STAY ON TOP OF HOMEWORK

GO TO PROFESSOR AND TA OFFICE HOURS, CTL, CALC TABLE.

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Engineering Student Success Center | CAPS

Start Your Semester Off Right
Join us for a *FREE*

Pre-Semester Prep Workshop Series

These interactive workshops will review all foundational material leading up to the specified course so you are better equipped to hit the ground running.

Synchronous in-person in the ESS suite & virtual via Zoom

College Algebra Prep	Wednesday, January 10, 2024	1 - 3 PM
+Pre-Calc/Trig Prep	Monday, January 8, 2024	10 AM - 12 PM
+Calc 1 Prep	Tuesday, January 9, 2024	10 AM - 12 PM
+Calc 2 Prep	Wednesday, January 10, 2024	10 AM - 12 PM
Calc 3 Prep	Thursday, January 11, 2024	10 AM - 12 PM
Math working session	Thursday, January 11, 2024	1 - 3 PM
Chem 1 Prep	Friday, January 12, 2024	10 AM - 12 PM
+Physics 1 Prep	Friday, January 12, 2024	1 - 3 PM

+Attend these sessions & give feedback for access to a general knowledge exam.

RSVP is preferred but not required

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or **through our web-app - succESS**

Questions?

Give feedback.

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goto.unm.edu/ess-feedback

Don't forget to follow up on social media.

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