





# 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 the Penji App (with Zoom)



Tutoring schedule & more info at



ess.unm.edu/services/tutoring/

or through our app - succESS



WRITING SCIENCE MATH LANGUAGES



### CENTER FOR ACADEMIC PROGRAM SUPPORT

caps.unm.edu









**Online Drop-in Support** 

Individual Appointments

Supplemental Instruction

**Learning Strategies** 

### Semester-Long Engagement Opportunities

Many are open to pre- and full majors and have no citizenship or GPA requirements.

https://goto.unm.edu/internships

INTERNSHIPS

https://goto.unm.edu/mentoring

### MENTORING

#### BE a mentor

...to our incoming students in their transition into the University of New Mexico, the university setting, and Albuquerque.

#### HAVE a mentor\*

...who is a STEM Professional working in the field to build your network and receive guidance and support.

\*This program is open to UNM STEM Majors. Priority is given to Freshmen and Sophomores, but all levels are encouraged to

apply

Getting real-world experiences leads to your satisfaction with your undergraduate journey. Gain valuable hands-on experience while making professional connections.

These programs are only open to School of Engineering Students. https://goto.unm.edu/research

### RESEARCH

#### • EPICS @UNM ...to give back to the community, earn credit, and gain research experience all at the same time!

### Student Research Experience Program

...to get hands-on research experience to understand how your courses fit in to real-world applications.

These programs are only open to School of Engineering Students.





For more information, or to apply, visit: https://ess.unm.edu/programs/current-students



#### A tool for engineering your

### succ**ESS**

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





NYA.

#### You are WELCOME to ALL events



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

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**

Building Community - Weekly focused Study Groups How to make the most of your learning Twitch streaming event Study Skills Manage Your Time Shadow Day CAD Basics Coffee Hour with Faculty How to be more assertive UROC - Attendance Participation

Spatial Visualization Series Recap of sessions 1 - 3 from the Fall semester Two-Axis Rotations and Inclined Planes & Curved Surfaces Reflection Symmetry & Write a Rule

#### **Career and Professional Development Events**

Landing an internship So, What's Next? Start-Ups, Patents, and Publications STEM Mixer & Find Your Pack Interviewing Basics Building Connections & Networking Resumes and Cover Letters ...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. 

# Contents

- Fraction Math
- Solving systems of equations
- Difference Quotient
- •Unit Circle
- Trig Functions



# Fraction Math

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

Multiplying Fractions
 Multiply numerators and denominators straight across

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

oReduce, reduce, reduce!



# **Fraction Math**

- oAdding Fractions  $\frac{14}{3} + \frac{9}{21}$
- OMultiplying Fractions
  - $\frac{3}{4} \times \frac{5}{6}$
- oDividing Fractions

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



# Solving Systems of Equations

oElimination Method

o"Handcuff" the equations together

oSubstitution Method

o Isolate a variable in one equation and substitute it into the other

Solutions that apply to both equations
 Used to find where two lines intersect



### Solving Systems of Equations

 $6x + 4y - 2 = 2x^3 + 6x^2 + 2y$  $y = 6 - 2x^2 - 2x$ 



# The Difference Quotient

$$O\frac{f(x+h)-f(x)}{h}$$

 A way to find the slope of a line over a particular interval

o"average rate of change"





### The Difference Quotient

 $\frac{f(x+h)-f(x)}{h}$ 

f(x) = 12 - x









o(x, y) → (cosθ, sinθ)  $otanθ = \frac{sinθ}{cosθ}$ o180° = π rad







•Convert 
$$\frac{2\pi}{3}$$
 to degrees













# **Trig Functions- Graphs**



• Range restricted to (-1,1) for "parent functions"





**Graph**  $f(x) = 2sin\left(x + \frac{\pi}{2}\right)$ 



# **Inverse Trig Functions**

These "undo" regular trig functions
 Input distances to find the angle

 $osin^{-1} x = \theta$   $ocos^{-1} x = \theta$   $otan^{-1} x = \theta$   $oEx. tan^{-1} (\sqrt{3}) = \frac{\pi}{3}, \frac{4\pi}{3} + 2\pi n$  $oTry: sin\theta = -\frac{1}{2}$ 



# **Inverse Trig Functions - Graphs**

Domain is restricted to (-1,1)
 Opposite of regular trig functions

 $of(x) = \sin^{-1} x$   $of(x) = \cos^{-1} x$  $of(x) = \tan^{-1} x$ 





oUseful identities for simplifying difficult trig problems



Using the given information, find the solutions to each of the following trig functions:  $cos\theta = \frac{3}{5}, \quad \sin\theta > 0$ 

- $sin\theta =$
- $tan\theta =$
- $csc\theta =$
- $sec\theta =$
- $cot\theta =$

What quadrant of the unit circle does  $\theta$  fall in?



# 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.



Engineering Student Success Center | CTL Undergraduate Support
Start Your Semester Off Right
Join Us for a FREE

#### **Pre-Semester Prep Workshop Series**



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







**RSVP** is preferred but not required

<u>ess.unm.edu/events</u> > August



or through our web-app - succESS



### goto.unm.edu/ess-feedback



Don't forget to follow up on social media.

