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
STEM Tutoring

Writing Tutoring

Conversation Groups

Learning Strategies

3rd floor Zimmerman Library
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
Contents

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

Parenthesis
Exponents
Multiplication/Division
Addition/Subtraction
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 $21 ÷ 7 = 3$
Rewrite Equations

\[ 6 \div 2(1 + 2) = \]
Rewrite Equations

\[
\frac{6}{2(1+2)} = 6 ÷ 2 \times (1 + 2) =
\]
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**

- **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

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Graphing
• XY table
• Point/slope
• Important Points
• \( y = mx + b \)
Using an XY Table

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>-3</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Mentality</th>
<th>Be proactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review</td>
<td>Review the self-evaluation</td>
</tr>
<tr>
<td>Explore</td>
<td>Explore online resources</td>
</tr>
<tr>
<td>Converse</td>
<td>Talk to your professor and TA</td>
</tr>
<tr>
<td>Locate</td>
<td>Find resources on campus, such as CTL and tutoring</td>
</tr>
<tr>
<td>Study</td>
<td>Form a study group, develop a study plan</td>
</tr>
</tbody>
</table>
Throughout the semester

GO TO CLASS

STAY ON TOP OF HOMEWORK

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

<table>
<thead>
<tr>
<th>Workshop Type</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Algebra Prep</td>
<td>Wednesday, January 10, 2024</td>
<td>1 - 3 PM</td>
</tr>
<tr>
<td>Pre-Calc/Trig Prep</td>
<td>Monday, January 8, 2024</td>
<td>10 AM - 12 PM</td>
</tr>
<tr>
<td>Calc 1 Prep</td>
<td>Tuesday, January 9, 2024</td>
<td>10 AM - 12 PM</td>
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<tr>
<td>Calc 2 Prep</td>
<td>Wednesday, January 10, 2024</td>
<td>10 AM - 12 PM</td>
</tr>
<tr>
<td>Calc 3 Prep</td>
<td>Thursday, January 11, 2024</td>
<td>10 AM - 12 PM</td>
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<tr>
<td>Math working session</td>
<td>Thursday, January 11, 2024</td>
<td>1 - 3 PM</td>
</tr>
<tr>
<td>Chem 1 Prep</td>
<td>Friday, January 12, 2024</td>
<td>10 AM - 12 PM</td>
</tr>
<tr>
<td>Physics 1 Prep</td>
<td>Friday, January 12, 2024</td>
<td>10 AM - 12 PM</td>
</tr>
</tbody>
</table>

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

RSVP is preferred but not required

ess.unm.edu/events > January

or through our web-app: succESS
Questions?

Give feedback.
Win a gift certificate!

goto.unm.edu/ess-feedback

don’t forget to follow up on social media.

ess.unm.edu or our succESS web-app