

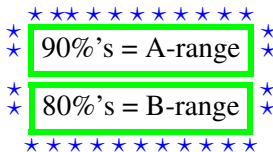
Welcome to class!

with Prof. D'Ambroise

High Expectations



Grading Standards



74-79% = C or C-plus = passing

70-73% = C-minus = failing

60%'s = D-range = failing

below 60% = F = failing

*All students are held to the same high standards
regardless of job/home/other class responsibilities.*

*Aiming to surpass
is the best
strategy!*

90%'s = A-range

80%'s = B-range

74-79% = C or C-plus = **passing**

70-73% = C-minus = **failing**

60%'s = D-range = **failing**

below 60% = F = **failing**

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Failing Mentality (for lack of a better word)

- go to class
- do assignments
- take exams

Mentality for Success:

learn to engage & think in new ways

- prepare in advance
- go to class
- discuss with your peers & communicate with prof.
- do assignments
- think, ponder, ask questions, review, revise
- take exams
- be realistic & evaluate your progress honestly

Be prepared to work outside your comfort zone!

You will need to master...

BIG IDEAS (big scale)

- how math relates to real life
- how to read and interpret math
- understanding different presentations of the same information

STEPS OF PROBLEMS (small scale)

- algebra
- trig
- graphing functions
- prerequisite material
- new material

Image from Stack Exchange: <http://meta.math.stackexchange.com/questions/6479/a-graph-map-of-math-se>

Warning on outside resources

Relying too heavily on outside resources
can cause *confusion and failure!*

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If you use outside resources you must follow up with
reading the book, coming to office hours,
and interacting with *our* course material.

Only your Prof. can tell you what WE focus on in THIS class!

Harmful Math Stereotypes

- "I am not a math person."

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It's a vicious cycle:

*if you believe you cannot do math,
then you won't work hard enough & you won't do well,
then your false belief that you can't do it will be
verified!*

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*BREAK THE CYCLE
by working hard
and learning to communicate & ask for help.*

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*Don't handicap yourself by adopting
false beliefs about your abilities.*

Work hard and LEARN HOW to read a math textbook.

*Tips: Skipping around is recommended for math!
(math textbook \neq novel)*

*Be persistent, ask questions, take notes.
Actively engage, don't be passive.*

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- Math is an Inborn Talent

False.

*Math is an acquired skill that takes
hard work and dedication.*

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*Don't handicap yourself by
shutting out peers, the prof., tutors, etc..*

Communication is essential to learning math!

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FALSE!

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*There are NO dumb questions in this class!
Students asking questions are showing initiative!
The Prof. loves working one-on-one for the best result!*

Communication is key

Office hours

- basic algebra questions
- basic trig questions
- basics about how to graph a function
- questions about prerequisite material you forgot
- questions about what we are currently covering
- questions about your major / your life goals, etc.
- and more!

Mentality for Success

Too proud to get help?

Mentality for Success

Too proud to get help?
You're at risk for failure.

Advice From Students

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- ... taking organic chemistry."
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This class is a commitment.

Plan wisely.

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WHY?

Higher math is conceptual.

Your brain needs time to settle and absorb it.

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- ... making study sheets helps with understanding the concepts."

WHY?

There is A LOT of information in this class.

Quick summaries help to reduce the cognitive load.

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- ... working in peer groups is actually helpful
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WHY?

*Other students can help when you don't understand.
Helping others will increase your math confidence!
You'll see other students have the same questions.*

Five Stages of Learning

- ① **Novice:** technically knows the rules but has little or no situational understanding and cannot adapt quickly
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- 3 **Proficient:** focuses is on long term goals (relating math to your major) rather than difficulties of individual math problems
- 4 **Expert:** rules are instinctual & automatic, student has practiced so much they not surprised by exam questions
- 5 **Mastery:** (rare) mental energy no longer needed to produce nearly perfect results

Five Stages of Learning: **GOALS** for exams

- 1 **(fail) Novice:** technically knows the rules but has little or no situational understanding and cannot adapt quickly
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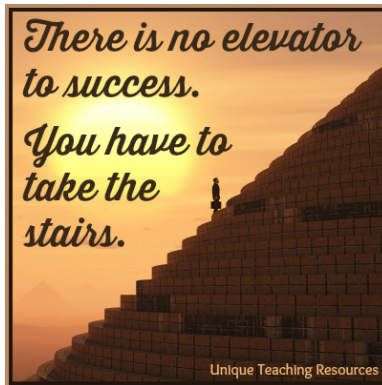
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- ③ **(possible pass) Proficient:** focuses is on long term goals (relating math to your major) rather than difficulties of individual math problems
- ④ **(decent outcome: A or B) Expert:** rules are instinctual & automatic, student has practiced so much they not surprised by exam questions
- ⑤ **(decent outcome: A or B) Mastery:** (rare) mental energy no longer needed to produce nearly perfect results

Memes



Everyday

**I WILL TRY HARDER
THAN I DID BEFORE!**



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The next few pages are designed for courses with online HW.

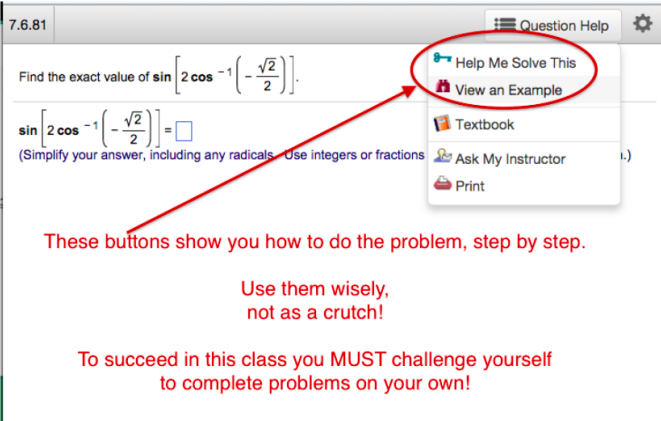
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The next few pages are designed for courses with online HW.

You cannot surpass novice level
if you rely too heavily on provided instructions.



The screenshot shows a math problem interface. At the top left, the problem ID "7.6.81" is displayed. The problem text is "Find the exact value of $\sin \left[2 \cos^{-1} \left(-\frac{\sqrt{2}}{2} \right) \right]$." Below this, the expression $\sin \left[2 \cos^{-1} \left(-\frac{\sqrt{2}}{2} \right) \right] = \square$ is shown, followed by the instruction "(Simplify your answer, including any radicals. Use integers or fractions.)". In the top right corner, there is a "Question Help" button with a gear icon. A red circle highlights a dropdown menu that appears when the "Question Help" button is clicked. The menu contains five options: "Help Me Solve This" (with a key icon), "View an Example" (with a book icon), "Textbook" (with a book icon), "Ask My Instructor" (with a person icon), and "Print" (with a printer icon). A red arrow points from the text "These buttons show you how to do the problem, step by step." to the "Help Me Solve This" and "View an Example" options. Below the arrow, the text "Use them wisely, not as a crutch!" is displayed. At the bottom, the text "To succeed in this class you MUST challenge yourself to complete problems on your own!" is shown in red.

7.6.81

Question Help

Find the exact value of $\sin \left[2 \cos^{-1} \left(-\frac{\sqrt{2}}{2} \right) \right]$.

$\sin \left[2 \cos^{-1} \left(-\frac{\sqrt{2}}{2} \right) \right] = \square$

(Simplify your answer, including any radicals. Use integers or fractions.)

Help Me Solve This

View an Example

Textbook

Ask My Instructor

Print

These buttons show you how to do the problem, step by step.

Use them wisely,
not as a crutch!

To succeed in this class you MUST challenge yourself
to complete problems on your own!

You cannot surpass the competence level
if you don't test yourself frequently.

The screenshot shows a math problem interface. At the top left, the problem number "7.6.81" is circled in red. A red arrow points from this number to the problem text. The problem text asks to find the exact value of $\sin \left[2 \cos^{-1} \left(-\frac{\sqrt{3}}{2} \right) \right]$. Below this, the same expression is shown with an equals sign and a blue square box for the answer. A red arrow points from the box to the problem number. Another red arrow points from the problem number to the problem text. A third red arrow points from the problem number to the problem text. The interface also includes a "Question Help" button and a settings gear icon.

7.6.81

Find the exact value of $\sin \left[2 \cos^{-1} \left(-\frac{\sqrt{3}}{2} \right) \right]$.

$\sin \left[2 \cos^{-1} \left(-\frac{\sqrt{3}}{2} \right) \right] = \square$

(Simplify your answer, including any radicals. Use integers or fractions for any numbers in the expression.)

Seek out MORE than just the assigned HW!

Look for the book section reference and go find more problems in the book.

Take the initiative and quiz yourself regularly using extra book problems!

In Problems 81–92, find the exact value of each expression.

81. $\sin \left(2 \sin^{-1} \frac{1}{2} \right)$

82. $\sin \left[2 \sin^{-1} \frac{\sqrt{3}}{2} \right]$

83. $\cos \left(2 \sin^{-1} \frac{3}{5} \right)$

84. $\cos \left(2 \cos^{-1} \frac{4}{5} \right)$