MATH 124

MATH FOR LIBERAL ARTS * FALL, 2025 *

Mon, Sep 8

The first quiz will be drawn from ONLINE PRACTICE:

Problem Solving 1: #4, #7

Problem Solving 2: #7

Quiz #1 ✓

HW

A. ONLINE PRACTICE:

Problem Solving 1: #1, #2, #3, #4, #7, #9

Problem Solving 2: #6, #7

B. Research the first phrase of the Gettysburg Address

"Four score and seven years ago . . ."

and be ready to explain all of the math contained within it.

Wed, Sep 10

Review Quiz ✓

Review HW ✓

Quiz #2 ✓

HW

A. ONLINE PRACTICE:

Problem Solving 1:	#2
Problem Solving 2:	#1, #2, #6
Number Theory:	#1, #2

B. Click: Sequences

Study pages 1–4

Mon, Sep 15

Review Quiz ✓

Review HW ✓

Quiz #3 ✓

HW

A. Click: Sequences

Study pages 1–4

B. ONLINE PRACTICE:

Problem Solving 1:	#1, #2, #3
Problem Solving 2:	#1, #2, #3, #4, #6
Number Theory	#1, #2, #3

Don't panic – the HW is almost completely review, so now's your chance to catch up. In fact, since it's mostly review, if Quiz #4 is better than Quiz #3, I will replace Quiz #3 with Quiz #4.

Wed, Sep 17

Review Quiz ✓

Review HW ✓

Quiz #4 ✓

HW

A. 1. A pizza parlor offers **5** different toppings. How many ways can you choose your toppings, all the way from NONE to ALL?

2. The ice-cream store offers **10** toppings. How many ways can you choose your toppings?

3. The yogurt shop has **1** topping. How many ways can you choose your toppings?

4. A pizza parlor offers ***n*** different toppings. How many ways can you choose your toppings?

5. The ice-cream parlor offers **6** toppings. How many ways can you choose your toppings, assuming you have to choose at least 1 AND you cannot choose them all?

B. **ONLINE PRACTICE:**

Problem Solving 1:	#3, #7
Problem Solving 2:	#1, #2, #3, #4, #6
Number Theory	#3

Mon, Sep 22

Review Quiz ✓

Review HW ✓

Quiz #5 ✓

HW

A. **ONLINE PRACTICE:**

Mortgages – #1, #2

B. **Click the PDF: *Sequences* – Try them all.**

C. **ONLINE PRACTICE:**

Sequences –All

Wed, Sep 24

Quiz #6 ✓

HW

A.

1. The yogurt shop has **1** topping. How many ways can you choose your toppings?
2. The yogurt shop has **0** toppings. How many ways can you choose your toppings?
3. A pizza parlor offers ***n*** different toppings. How many ways can you choose your toppings, assuming you cannot choose none, AND you cannot choose all?
4. The ice-cream parlor offers ***n*** toppings. How many ways can you choose your toppings, assuming you cannot choose exactly 1?

B. **ONLINE PRACTICE:**

Mortgages – #1, #2

Computer Math – #1, #2, #3

C. **Click:** ***Sequences***

D. **ONLINE PRACTICE:**

Sequences –All

Mortgages – #3

You should try this one on your own. To see the full solution, copy and paste the problem directly into Chrome (or any A.I. program) and see if you can follow the steps.

Mon, Sep 30

Quiz #8

HW

Wed, Oct 2

Review Quiz #8 ✓

Review HW ✓

Quiz #9 ✓

HW

A. Analyzing Signs

1. If $x < 0$, $\dfrac{e^x}{x}$ is always _____.

2. For any x, $\dfrac{x^2+4}{-x^2-9}$ is always _____.

3. If $x > 0$, $\dfrac{\sqrt{x}}{\sqrt[3]{x}}$ is always _____.

4. If $x > 0$, $\dfrac{-\sqrt[4]{x}}{x^3}$ is always _____.

5. If $x < 0$, $\dfrac{\sqrt[3]{x}}{x^2}$ is always ____.

6. If $x < 0$, $\dfrac{\sqrt[3]{x}}{x^3}$ is always ____.

7. If $x > 0$, $\dfrac{e^{-x^2}}{-\sqrt{x}}$ is always _____.

8. If $x < 0$, $\dfrac{-5e^{-x}}{1-x}$ is always ____.

B. Online Chapters

Exponential Functions

***e** (a Most Special Number)* [ALL problems]

C. Online Practice

Circles With Their Center Not at the Origin

Parabolas: Part I – ALL but #5

*Parabolas: Part II – #4 Only [**By Completing the Square**]*

Mon, Oct 7

Quiz #10 ✓

HW

Work on the **Online Practice** first, using the **Online Chapters** only if you need more examples.

A. Restudy **Online Chapters** – *Exponential Functions*

Sections:

GRAPHING EXPONENTIAL FUNCTIONS

THE LEGAL BASES OF AN EXPONENTIAL FUNCTION

B. **Factoring**

Online Practice: Factoring: Advanced [Problems 1–6]

Online Chapters: Advanced Factoring

C. **Systems of Equations**

Online Practice: Equations: Systems [Problems All but #6]

Online Chapters: Systems of Equations – Five Chapters

Wed, Oct 9

Quiz #11 ✓

9:35 – 10:50 Part I
10:50 – 11:10 Break
11:10 - 12:20 Part II
12:20 – 12:40 Quiz

HW

A. Systems of Equations

Online Chapters: Systems of Equations – 3 Variables

Online Practice: Equations: Systems [Problems 6 and 7]

B. Factoring

Online Practice: Factoring: Advanced [All]

C. Vertex of a Parabola

Online Practice: Parabolas: Part II [#4 by *COMPLETING THE SQUARE*!!]

D. Solve each absolute-value equation:

1. $|x| = 17$
2. $|n| = 0$
3. $|w| = -1$
4. $|x+7| = 20$
5. $|x-5| = 40$
6. $|x-9| = 0$
7. $|x+\pi| = 0$
8. $|x+7| = -2$
9. $|x+7| - 13 = -2$

E. Exponential Equations, in Online Chapters

F. Logarithms, in Online Chapters

Mon, Oct 14

Quiz #12 ✓

HW

A. Factoring

Online Practice: Factoring: Advanced [All]

B. Vertex of a Parabola

Online Practice: Parabolas: Part II [#4 by *COMPLETING THE SQUARE*!!]

C. Find the equation of the **tangent line** for the function $y = e^x$ for each value of x:

1. $x = 4$ 2. $x = -3$ 3. $x = 0$ 4. $x = 2.3$

Calculate all values to the hundredths place (2 digits past the point).

D. We haven't learned the slope formula for $y = e^{-x}$, but do you think the slope formula gives positive or negative values? Why?

E. **Simplify each expression using the Power Law of Logs:**

1. $\log_2 7^9$ 2. $\log 14^{10}$ 3. $\log_b Q^R$ 4. $\left(\log_3 7\right)^2$

F. **Online Practice – Equations: Advanced Exponentials**

G. Solve each absolute-value **inequality**:

1. $|y| < 17$ 2. $|t| < 0$ 3. $|h-4| \le 15$
4. $|a+4| < 12$ 5. $|n+1| < -1$ 6. $|2n-3| < 25$

H. Dividing Polynomials

Online Practice: Polynomial Division [Problems 1 – 5]
Online Chapters: Polynomials: Dividing [Only if needed]

I. Factoring Sum and Difference of Cubes

Online Chapters: Factoring: Sum and Difference of Cubes
Problem #3

Wed, Oct 16

Quiz #13 ✓

Review for Test #2 ✓

Mon, Oct 21

Lecture: TRIG

Test #2

HW

Online Practice (The Trig Chapters)

- **Ch 4 – 1, 2**
- **Ch 8 – 1, 2**
- **Ch 23 – 1, 3**

Wed, Oct 23

Quiz #14 ✓

HW

A. **Fill in the Trig Chart handed out Wednesday. The KEY will be emailed to you in a couple of days.**

B. **ALGEBRA CHAPTERS – Logs**

Mon, Oct 28

Quiz #15 ✓

HW

A. **If necessary, fill in the rest of the Trig Chart**

B. **Online Chapters: Log Equations, 1–10**

C. **Online Practice: (the trig chapters)**

Ch 23 – #4

Ch 24 – #3, #4

Ch 15 – #3 (HW #2 Link)

Wed, Oct 30

Quiz #16 ✓

HW

Online Practice

Ch 25: 3, 4

Ch 27: All

Ch 28: 1–5

Ch 15: 1–4

Ch 31: 1

Ch 16: 3, 4

Ch 18: All

Mon, Nov 4

Quiz #17 ✓

HW

A. **Online Practice, Chapter 8: #3, #5, #7**

B. **Online Chapters, Log Functions**

Wed, Nov 6

Quiz #18

HW

A. **Online Practice**

Ch 9: 1–4

Ch 16: 2, 4, 5, 6

Ch 17: ALL

Ch 18: ALL

Ch 32: 1–3, 6

B. **Click → *LIMITS***

Mon, Nov 11

Wed, Nov 13

Review for Test #3 ✓

Nov 15 – Last day to drop with a W. 

Quiz #19 ✓

Mon, Nov 18

Test #3

HW

A. Ch 5 – Right Triangle Trig, Part 1, Problems 1, 2
Ch 37 – The Unit Circle , ALL

B. Ch 33 – The Sum and Difference Identities, ALL

C. Click → *LIMITS*

Wed, Nov 20

Quiz #20 ✓

HW

A. Ch 6 – 1, 3, 4, 5

Ch 13 – ALL

Ch 35 – ALL (Ignore the message at the top of the Identities sheet.]

B. Click → *LIMITS* (yes, again)

C. More Limits (yes, I like limits)

$$\lim_{x\to-\infty}\frac{1}{x^3}=0 \qquad \lim_{x\to2}\frac{x-2}{x^2-12x+20}=-\frac{1}{8}$$

$$\lim_{x\to0^-}\ln x=DNE \qquad \lim_{x\to\frac{\pi}{2}}\sin x=1$$

$$\lim_{x\to10}\frac{x^2-8x-20}{x^2-11x+10}=\frac{4}{3} \qquad \lim_{x\to-\infty}e^x=0$$

$$\lim_{x\to\infty}\frac{x^2-3}{x+7}=\infty \qquad \lim_{x\to\infty}\frac{x^2-3}{x^3+7}=0$$

$$\lim_{x\to\infty}\frac{10x^2-3x}{5x^2+9}=2 \qquad \lim_{x\to0^+}\sqrt{x}=0$$

Mon, Nov 25

Instantaneous Velocity ✓
The Derivative ✓
Calc Snippets ✓

Quiz #21 ✓

HW

A. Previous HW, Part C (I've provided the answers)

B. In class, we expressed the five trig functions (except sin) in terms of sin:

$$\cos\theta = \pm\sqrt{1-\sin^2\theta} \qquad \tan\theta = \frac{\sin\theta}{\pm\sqrt{1-\sin^2\theta}}$$

$$\cot\theta = \frac{\pm\sqrt{1-\sin^2\theta}}{\sin\theta} \qquad \sec\theta = \frac{1}{\pm\sqrt{1-\sin^2\theta}}$$

$$\csc\theta = \frac{1}{\sin\theta}$$

Do the same thing for the cosine and tangent functions.

C. Ch 35, #1

Wed, Nov 27

Quiz #22 ✓

HW – Exactly the same as Monday's HW

Mon, Dec 2

Double-angle Identities
Review of Derivative, Slope and Velocity, *f'* and *dy/dx* notation
Tangent Lines
The Reference Angle
Inverse Functions (in progress)
Graphing

Quiz #23 ✓

HW

A. **Ch 38 - Reference Angles**

B. **Ch 39 - Inverse Trig Functions**

C. **Ch 34 - Double-angle Identities, #1 - #4**

D. 1. Find $f'(x)$ if $f(x) = 4x^2 + \sin x - e^x + \ln x$.

2. Find $\frac{dy}{dx}$ if $y = 17x^4 + 17x^3 + 17x^2 + 17x + 17$.

3. Find $g''(x)$ if $g(x) = \sqrt[3]{x^2} + \pi x^{10} + \sqrt{2}\,x + (e\pi)^{44}$.

4. If the position function is given by $s(t) = \frac{1}{t^6}$, calculate $v(t)$.

Wed, Dec 4

Graphing ✓
Trig equations ✓
Trig fcns on subsets of $\mathbb{R}$ ✓

Quiz #24 ✓

HW

A. **Online Chapters – GCF - Equations and Formulas, #4, #5**
B **Ch 39 – ALL**
C. **Ch 44 – ALL**
D. **Click → *Properties of the Graphs* [#1–#4]** [answers at the end]
E. **Ch 42 –ALL**
F. **Ch 40 – #1 – All parts except #4**

Mon, Dec 9

Review for Final

Quiz #25

Wed, Dec 11

FINAL