Matrix Unit – Flipped Classroom Assignments

In this unit, we will “flip the classroom.” There will be little to no lecture in class as you will watch the videos below for homework on the **night before we discuss the learning target in class**. Thus, class time will be almost entirely dedicated to formative assessments and “homework.”

LT 1 – Videos/Tutorials (Appr. 10 minutes total)

<https://www.khanacademy.org/math/algebra2/algebra-matrices> <--Under “Basic matrix operations”

1. **Inroduction to to the Matrix** (Appr. 4 ½ min)
2. **Scalar Multiplication** and the practice problem below the video (Appr. 2 ½ min)
3. **Matrix addition and subtraction** and the practice problem below the video (Appr. 5 ½ min)
4. READ: Green Book = Page 185-186 and Page 193

LT 2 – Videos/Tutorials (Appr. 16 minutes total)

<https://www.khanacademy.org/math/algebra2/algebra-matrices> <-- Under “Matrix Multiplication”

(1) **Scalar multiplication** and the practice problem below the video (Should have watched already… 2 min 18 Sec)

(2) **Matrix multiplication introduction** (Appr. 6 ½ min)

(3) **Multiplying a matrix by a matrix** and practice problem (Appr. 5 min)

(4) **Multiplying a matrix by a column vector** and practice problem (App.4 ½ min)

(5) READ: Green Book = Pg. 194-195 (Scalar Multiplication) and Page 200-202 (Matrix Multiplication)

LT 3 – Videos/Tutorials (Appr. 7 ½ minutes)

<https://www.khanacademy.org/math/precalculus/precalc-matrices> <-- Under “Reduced row echelon form” 🡨At the very bottom!

(1) **Matrices: Reduced row echelon form 2** (Appr. 7 ½ min)

(2) READ: Green Book = pg. 236

LT 4 – Videos/Tutorials

There are no videos required as you will simply apply what you learned in LT 1, 2, and 3, to solve real-world problems.

LT 5 – Videos/Tutorials (Appr. 5 minutes total)

<https://www.khanacademy.org/math/precalculus/precalc-matrices> <-- Under “Inverting matrices”

(1) **Finding the determinant of a 2 x 2 matrix** and practice problem (Appr. 1 min)

(2) **Finding the determinant of a 3 x 3 matrix method 1** and practice problem (Appr. 2 ½ min)

(3) (OPTIONAL) **Finding the determinant of a 3 x 3 matrix method 2**

(4) READ: Green Book – Pg. 220 (2 x 2) and Pg. 221 (3 x 3)

LT 6 – Videos/Tutorials (Appr. 15 minutes total)

<https://www.khanacademy.org/math/precalculus/precalc-matrices>

(1) **Identity matrix** (Appr. 8 min) <-- Under “Zero and identity matrices”

(2) **Dimensions of identity matrix** (Appr. 4 min) <-- Under “Zero and identity matrices”

(3) **Inverse of a 2 x 2 matrix** and practice problem (Appr. 3 min) <-- Under “Inverting matrices”

(4) READ: Green Book – Pg. 229 – 230 (Example 2)

LT 7 – Videos/Tutorials (Appr. 16 ½ minutes total)

<https://www.khanacademy.org/math/precalculus/precalc-matrices> <-- Under “Inverting matrices”

(1) **Matrices to solve systems of equations** (Appr. 16 ½ min)

(2) READ: Green Book – Pg. 231 **Matrix Equation** – Pg. 232

GREEN BOOK READING ASSIGNMENTS:

**LT 1 – Reading Assignment**

Read Pg. 185 – 186 = Introduction

Read Pg. 193 = Add/Subtract

**LT 2 – Reading Assignment**

Read Pg. 194 – 195 = Scalar Multiplication

Read Pg. 200 – 202 = Multiplying Matrices

**LT 3 – Reading Assignment**

Read pg. 236

**LT 4 – Reading Assignment**

None

**LT 5 – Reading Assignment**

Read Pg. 220 (2 x 2 determinant) and Pg. 221 (3 x 3 determinant using diagonals)

**LT 6 – Reading Assignment**

Read Pg. 229 – 230 (Example 2)

**LT 7 – Reading Assignment**

Read Pg. 231 **Matrix Equation** – Pg. 232