

Group Project Part 2

Students will work in March on this project
but may only join after completing Lesson 9
including any necessary corrections.

In this group project all the teams will prove the following three theorems (using the justifications listed below):

Theorems about Matrix Multiplication

$$\text{Thm I: } A(\vec{x} + \vec{y}) = A\vec{x} + A\vec{y} \text{ for } A \in M_{n \times m} \vec{x}, \vec{y} \in \mathbb{R}^m$$

$$\text{Thm II: } B(k\vec{w}) = k(B\vec{w}) \text{ for } k \in \mathbb{R} B \in M_{n \times m} \vec{w} \in \mathbb{R}^m$$

$$\text{Thm III: } A(t\vec{x} + s\vec{y}) = t(A\vec{x}) + s(A\vec{y}) \text{ for } s, t \in \mathbb{R} A \in M_{n \times m} \vec{x}, \vec{y} \in \mathbb{R}^m$$

Justifications you may use to prove these theorems

Definition of $M_{n \times m}$ and Definition of \mathbb{R}^m

Defn of Matrix mult by a vector (Lesson 6)

Defn of Addition of Vectors (Lesson 1)

Defn of Scalar Multiplication of vectors (Lesson 1)

Distribution of reals: $a(b+c) = ab+ac$ for $a, b, c \in \mathbb{R}$

Distribution of reals: $(a+b)c = ac+bc$ for $a, b, c \in \mathbb{R}$

Commutativity of reals: $a \cdot b = b \cdot a$ for $a, b \in \mathbb{R}$

In Part 2 all students are trying to **earn three points by contributing three correct statements with justifications**. There is no extra credit for extra work but it can be a fun learning experience if you are enjoying yourself and might be mentioned in a letter of recommendation or a job reference.

Students can also earn **leadership credit** by typing polite corrections and encouragement to classmates. Leadership activity will be mentioned by the professor in a letter of recommendation or a job reference.

There is no late team this time. Students who are on schedule have been distributed to all three teams and students who are late are in all three teams.

Team 2A

Abbadi, Maha
Acevedo, Jade
Alkaifi, Hebib
Castillo, Edgar
Colon, Coryn
Contreras Caraballo, Luis
Dalton, Garrett
Doqaj, Angel
Eltareb, Usmah
Estevez, Damarcos

Team 2B

Halim, Salma
Huang, Zhi Cheng
Iddrisu, Adnan Abdul Razak
Keita, Makan-sira
Khan, Savara
Ledesma, Rosangel
Mejia, Christopher
Mejia, Crismery
Molina, Vladimir
Ouattara, Seydou

Team 2C

Parra, Hector
Pena, Allerza
Perez, Felix
Rivers, Isaiah
Sanchez, Erick
Shahzad, Mustafa
Shugan, Suhbat
Taylor, Deandra
Timberlake, Kendra
Tobal, Justyn

