Week 6 Day 2

Polynomials

Make sure you know your neighbors' names. Then take 2 minutes to discuss:

Let U be the subset of $\mathbb{P}_3$ consisting of polynomials p such that $p(0) = p(1) = 0$. Is U a subspace of $\mathbb{P}_3$? If so, what is its dimension?

Upcoming

- This week:
  - Friday is Veteran's Day — no class!
- Next week:
  - For Monday: Read 5.1
  - For Wednesday: Submit review requests for midterm 2 via the same Google Form (linked on Canvas)
  - For Friday: Read 5.2
  - Midterm 2 on Friday evening; covers through chapter 4

Determinants 2

1. Let $T : \mathbb{R}^2 \to \mathbb{R}^2$ be the linear map $T(x, y) = (3x + y, -2y)$. Let

$$S = \{(x, y) : 0 \leqslant x, y \leqslant 1\}$$

be the unit square in $\mathbb{R}^2$. Which of the following is true about $T(S)$?

(A) It contains $(3, 0)$ and $(1, -2)$.

(B) It is a parallelogram.

(C) It has area 6.

(D) None of the above OR more than one of the above.

2. Find the area of the parallelogram whose vertices are $(1, 1), (6, 3), (7, 5), (12, 7)$.