

MAT 532 — HOMEWORK 5

DUE ON WEDNESDAY, MARCH 8

Reading. Read sections 6.2, 6.3, 6.4, and 9.3 carefully.

Problems. Only the **bold-faced problems** will be collected. There are a total of 7.

6.2: Orthogonality and Angle

#**9abd**, **11**, 14, 15ab, 16, **18c**, 33

Hints: For #11, first just find one vector that's orthogonal to the given three; then scale it to have length 1, and reverse it to get a second. For #33, you don't need to "prove" those equations; just figure out how to apply Cauchy-Schwarz to make them fall in your lap.

6.3: Orthonormality, Gram-Schmidt, and QR -decompositions

#3, 5, **8**, **9**, 16a, 20, 24ac, **29**

6.4: Best Approximation, Least Squares

#**3ac**, 5a, 10