

MA511 HW23

#4.2.2.

Sol. (1) For any scalar c , and any square matrix of order n .

$$\det(cA) = c^n \det(A)$$

$$\therefore \det\left(\frac{1}{2}A\right) = \left(\frac{1}{2}\right)^3 \det(A) = -\frac{1}{8}$$

(2) For the same reason

$$\det(-A) = (-1)^3 \det(A) = 1$$

(3) $\therefore \det(AB) = \det(A) \cdot \det(B)$

$$\therefore \det(A^2) = [\det(A)]^2 = 1$$

(4) $\det(A^{-1}) = [\det(A)]^{-1} = -1$

#4.2.4

Sol. (1) pivots: 1, -1, -2, 10

$$\det = 20$$

(2) pivots: 2, $\frac{3}{2}$, $\frac{4}{3}$, $\frac{-11}{4}$

$$\det = -11$$

(3) After row exchange.

pivots: 2, $\frac{3}{2}$, -1, $\frac{-11}{3}$

$$\det = 11$$