Linear Algebra Bonus Worksheet 2

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1. (a) $M_{22} = \begin{vmatrix} 3 & -1 \\ 2 & 0 \end{vmatrix} = 2$

   (b) $C_{22} = (-1)^4 M_{22} = 2$

   (c) About Column 3: $-1(-4-12) - 3(-12-4) = 64$

   (d) SKIP

   (e) SKIP

   (f)

2. $\begin{vmatrix} 3-\lambda & -1 \\ 1 & 1-\lambda \end{vmatrix} \neq 0$

$$(3-\lambda)(1-\lambda) + 1 = \lambda^2 - 4\lambda + 4 \neq 0$$
$$\lambda \neq 2$$

3. (a) $2^3 \cdot \det(\mathbf{A}) = -56$

   (b) $2^3 \cdot \frac{1}{\det(\mathbf{A})} = -\frac{8}{7}$

   (c) $\det(\mathbf{A}) = -7^3 = -343$

   (d) $2^3 \det(\mathbf{A})^\intercal = -56$

   (e) SKIP

   (f)

   (g)

   (h)

   (i)

4.

5.

6.

7.

8.

9.

10.