Determinants

Introducing determinants - definitions, and the determinant of a 2 by 2 matrix - suggested problems

P1: Compute $\det(A)$ for $A = \begin{bmatrix} -3 & 5 \\ 2 & -7 \end{bmatrix}$.

P2: Compute $\begin{vmatrix} 10 & 1 \\ -5 & -4 \end{vmatrix}$.

P3: What is the area of a parallelogram with edges defined by the vectors $<4, -3>$ and $<-5, -7>$ (this parallelogram would have three vertices at $(0, 0)$, $(4, -3)$, $(-5, -7)$, and the fourth vertex wherever needed to make the sides parallel - you can sketch and work that out, if you like).

P4: What values of $x$ would make $|A| = 0$, when $A = \begin{bmatrix} x - 1 & 2 \\ 2 & x + 2 \end{bmatrix}$

P5: What values of $x$ would make $|A| = 0$ when $A = \begin{bmatrix} x & 1 \\ -6 & x + 4 \end{bmatrix}$