





In #16 and 20, evaluate the determinant, given that  $\begin{vmatrix} a & b & c \\ d & e & f \\ g & h & i \end{vmatrix} = -6$ .

#16  $\begin{vmatrix} g & h & i \\ d & e & f \\ a & b & c \end{vmatrix}$

#20  $\begin{vmatrix} a & b & c \\ 2d & 2e & 2f \\ g + 3a & h + 3b & i + 3c \end{vmatrix}$

**Theorem 2.2.5** If  $A$  is a square matrix with two proportional rows or two proportional columns, then  $\det(A) = 0$ .