

MATH 223

Selected Hints and Answers for Assignment 13

Chapter 4: 23, 24, and 25

23: $\det \mathbf{M} = \frac{1}{(x^2+y^2)^2}$.

24: $\det \mathbf{M} = -y$.

25 : $\det \mathbf{M} = 2xyz$.

Problem A: Show that

$$\frac{f(\mathbf{y}) - f(\mathbf{x})}{|\mathbf{y} - \mathbf{x}|} = \nabla f(\mathbf{x}_0) \cdot \frac{\mathbf{y} - \mathbf{x}}{|\mathbf{y} - \mathbf{x}|}$$

and note that the vector on the right is a unit vector.