1

2

$$\alpha = -1$$

3

$$H = \begin{pmatrix} e/4 & -3e/4 \\ -3e/4 & e/4 \end{pmatrix}$$

4

$$y = x/\sqrt{2} + \sqrt{2}$$

5

$$-2/3$$

6

$$z + \frac{1}{x-y} + \sin(1+z^2-y^2) - 2y^2\cos(1+z^2-y^2)\frac{-2z}{(y^2+z^2)^2}$$

1

2

$$\alpha = \pm 2$$

3

$$H = \begin{pmatrix} \frac{1-2\sqrt{3}}{4} & \frac{1}{4} \\ 1/4 & \frac{2\sqrt{3}+1}{4} \end{pmatrix}$$

4

$$y = \frac{x}{\sqrt{3}} + \sqrt{3}$$

5

$$-2/3$$

6

$$y + \frac{1}{x-y} + \sin(1+x^2-y^2) - 2y^2\cos(1+x^2-y^2) - \frac{2z}{(x^2+z^2)^2}$$