**Answers to lecture problems – lectures 1 to 6**

**Lecture 1**

**Slide 1**

Value of the component in row 2 and column 3 of the matrix: –3.

Order: 3 × 4.

Matrix is:

**Slide 6**

–1

**Slide 9**

False

True

**EF** and **FG** defined, **EG** not.

E.g.

**Slide 10**

Yes.

**Lecture 2**

**Slide 2**

–20

**Slide 5**

**Slide 9**

**A**

**Slide 12**

**Lecture 3**

**Slide 2**

Eigenvalues 2 and 5

Eigenvectors and

Eigenvalues 2, –1 and 4

Eigenvectors , and

**Lecture 4**

**Slide 2**

Atmospheric pressure: scalar field

Ocean currents: vector field

Height above sea level: scalar field

**Slide 4**

**Slide 9**

0

**Lecture 5**

**Slide 1**

Divergence positive for top two points

**Slide 6**

2

**Lecture 6**

**Slide 1**

Curl positive on LHS

**Slide 5**