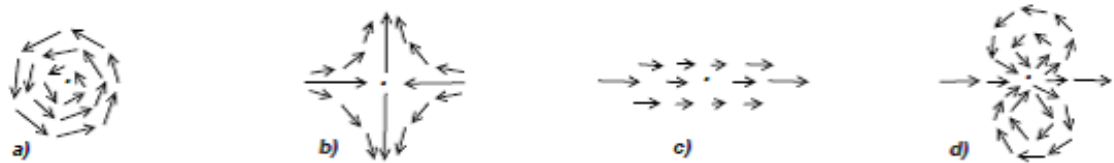# Vector Fields

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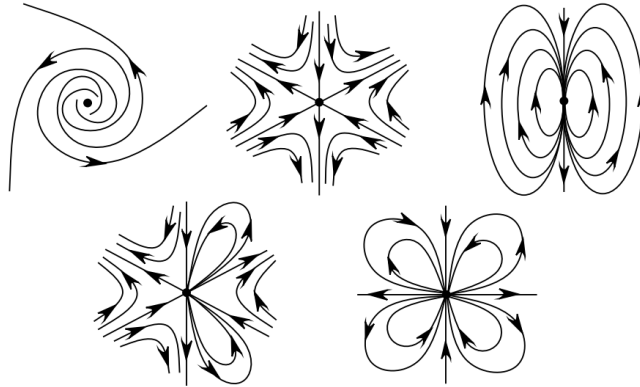## 1   Exercises

Exercise 1.1.

Compute the indices of the zeroes of the above vector fields using winding numbers.

2   Exercises

Exercise 2.1.

Compute the indices of the zeroes of the above integral curves using winding numbers.

Exercise 2.2. What do vector field zeroes with index n look like for an arbitrary integer n?

Exercise 2.3. Draw a good vector field on a genus 2 surface and find the indices of all the zeros.

Exercise 2.4.

1. Can there be a vector field on torus with exactly 1 zero?
2. Draw a good vector field on a torus with at least 1 zero. Does this contradict the Euler characteristic theorem?