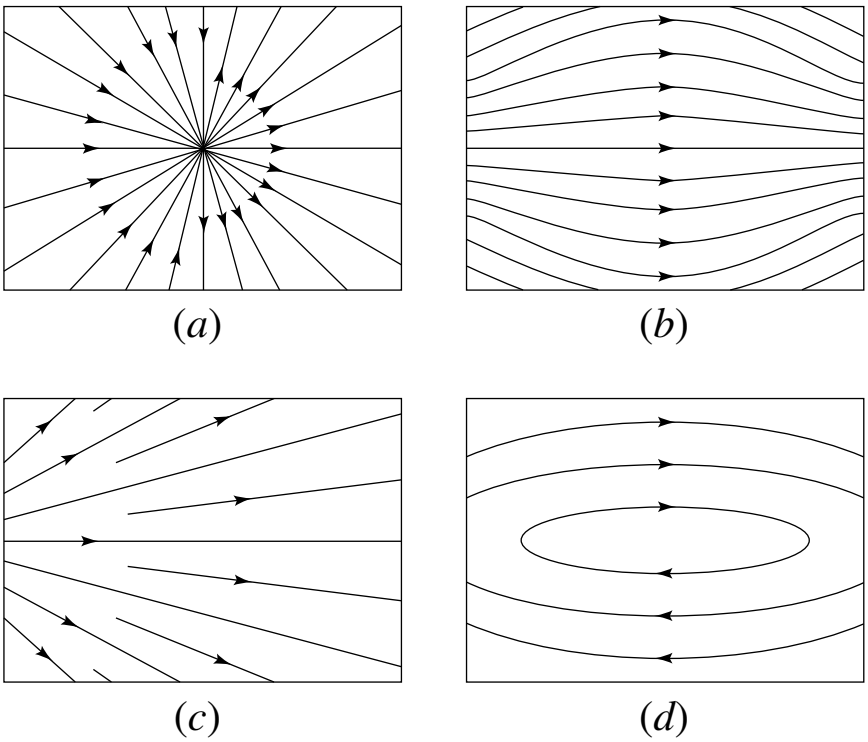
When two charged particles are put near each other, the resultant field is the superposition of the field due to the individual charged particles. Is the same true for the resultant field of two charged conducting spheres?

$E_{tot} = E_1 + E_2$ $\qquad$ $E_{tot} \overset{?}{=} E_1 + E_2$

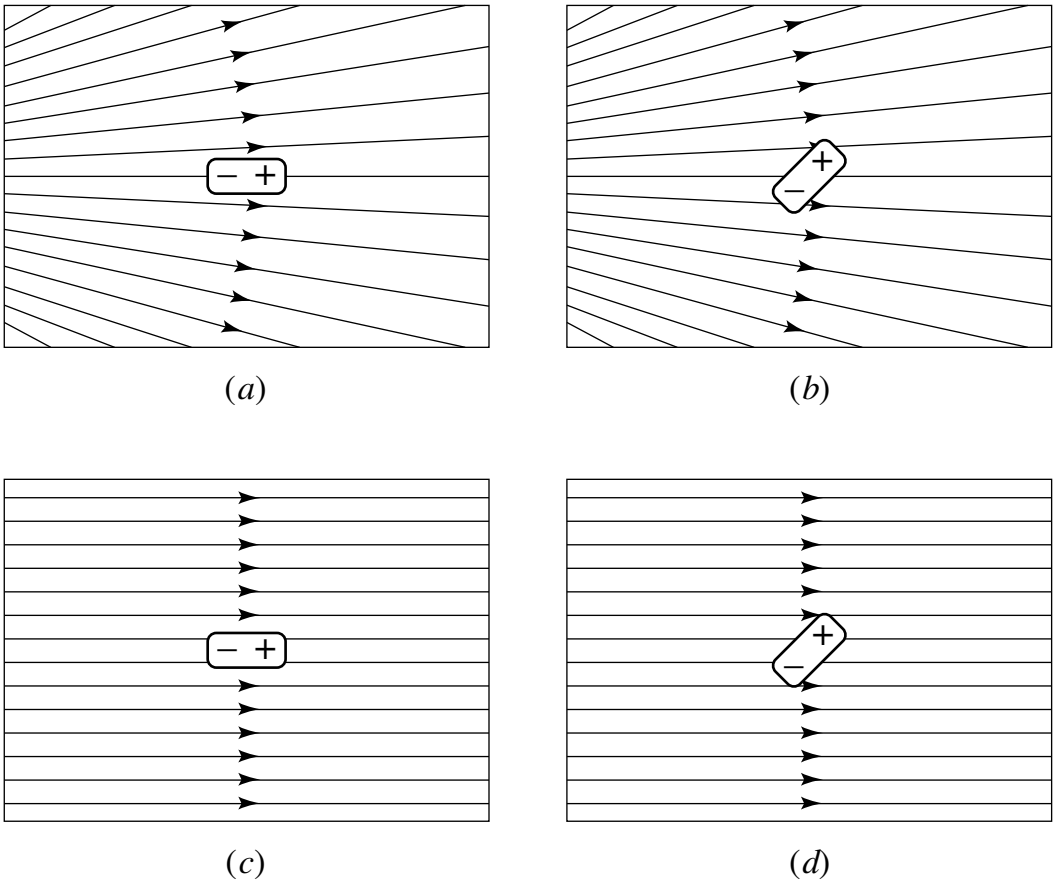
1. Yes.
2. No.

Consider the four field patterns shown. Assuming there are no charges in the regions shown, which of the patterns represent(s) a possible electrostatic field:



1. (*a*)
2. (*b*)
3. (*b*) and (*d*)
4. (*a*) and (*c*)
5. (*b*) and (c)
6. some other combination
7. None of the above.

An electrically neutral dipole is placed in an external field. In which situation(s) is the net force on the dipole zero?



1. (*a*)
2. (*c*)
3. (*b*) and (*d*)
4. (*a*) and (*c*)
5. (*c*) and (*d*)
6. some other combination
7. none of the above