<<Barron's AP 物理C>>

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2套全真测试题帮您考前热身

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章节摘录

版权页： 插图： 弹性、非弹性和完全非弹性碰撞 1. In an elastic coil&ion, kinetic energy is conserved. Whatever kinetic energy isspent deforming the objects as they collide is completely recovered as they sep-arate (the energy is only temporarily stored as a compression of the objects). 2. In inelastic collisions, kinetic energy is not conserved (some is used toproduce heat, sound, or permanently deform the objects, all of which are non-conservative processes). 3. In a totally inelastic collision, kinetic energy is also not conserved, and the twoobjects remain stuck together after the collision. 碰撞问题的解法 First, you must decide whether the collision is elastic or inelastic. If the problemsays that the two particles end up stuck together, it is by definition totally inelastic.Otherwise, the problem generally tells you whether the collision is elastic or (equiv-alently) whether kinetic energy is conserved. When the collision is elastic, you can construct equations based on the fact thatboth linear momentum and kinetic energy must be conserved. If the collision isinelastic, you can use only the conservation of linear momentum. The following are extra problem-solving tips: 1. If the collision is totally inelastic, the objects share a common.final velocity(because they are stuck together). 2. Remember that momentum is a vector, so if the collision occurs in more thanone dimension, the conservation of the momentum vector will be equivalentto a set of two or three one-dimensional equations. 3. If the problem allo~vs you to calculate the change in kinetic energy during thecollision, you can use a modified conservation of energy equation (such as△KE = KEfr - KE0) to solve an inelastic collision. 4. When you think of a situation where linear momentum is conserved, you prob-ably think of a collision involving "contact forces. However, momentum is con-served even when forces act at a distance (such as gravitational forces orelectrostatic forces), as long as there are no net external forces. For example,the momentum of a system of planets, which attract each other gravitationally,is conserved.

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