

AP Physics – Unit 2 - Dynamics

Worksheet #2 Free Body or Force diagram

Construct free-body diagrams for the situations described below. Use the symbols we discussed in class. **Draw force vectors on the circle and label them.**

Write the Sum of Forces (ΣF_x and ΣF_y)

1. A book is at rest on a table top. Diagram the forces acting on the book.



2. A girl is suspended motionless from the ceiling by a rope. Diagram the forces acting on the girl as she holds onto the rope.



3. An egg is free-falling from a nest in a tree. Neglect air resistance. Diagram the forces acting on the egg as it falls.



4. An egg is falling (not freely, do not neglect air resistance) from a nest in a tree. Diagram the forces acting on the egg as it falls.



5. A rightward force is applied to a book in order to move it across a desk with a rightward acceleration. Consider frictional forces. Neglect air resistance. Diagram the forces acting on the book.



6. A rightward force is applied to a book in order to move it across a desk at constant velocity. Consider frictional forces. Neglect air resistance. Diagram the forces acting on the book.



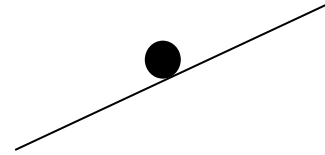
7. A car is stopped at a stop light.



8. A skydiver is descending with a constant velocity. Consider air resistance. Diagram the forces acting upon the skydiver.



9. A car is parked on a sloped street.



10. A hot air balloon is accelerating upward.



11. A car is coasting to the right and slowing down. Diagram the forces acting upon the car.

