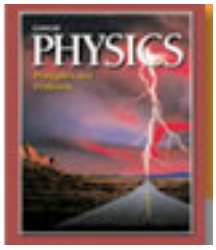
# Chapter 7 Outline — *Forces and Motion in Two Dimensions*

**Text Readings (Glencoe Physics)**

- Chapter 7; pages 149–173 *Read it before, during, and after we study this unit in class!*

**Handouts:** Formula Card and Chapter 7 Example problems




**Online resources**

- Your book's web page for chapter 7: http://tinyurl.com/5of37
  (look for extra problems and practice quizzes there)

**Unit objectives (This is what you have to know for the test.)**

- Explain the concept of centripetal acceleration and be able to perform related calculations.
- For a projectile, describe the changes in the horizontal and vertical components of its velocity when air resistance is negligible. Describe the trajectory of projectiles.
- Explain why a projectile moves equal distances horizontally in equal time intervals when air resistance is negligible.
- Know that the horizontal and vertical components of a projectile's trajectory are independent.
- Be able to describe all the symmetric properties of a projectile's motion.
- Explain how inertia is sometimes confused as a fictitious force called "centrifugal force."
- Correctly perform calculations for the motion of projectiles.
- Find the resultant of two or more force vectors that act at an angle to each other.
- Find the components of a force that acts at an angle and use this force to solve dynamics problems.
- Explain the concept of torque and complete related calculations.

**Pennsylvania Standards addressed in this unit:**

*Reading 1.1 – 1.3, 1.7* *Mathematics 2.1 – 2.11*

*Science & Technology*

3.1.12.A – Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
3.1.12.B – Apply concepts of models as a method to predict and understand science and technology.
3.1.12.C – Assess and apply patterns in science and technology.
3.1.12.D – Analyze scale as a way of relating concepts and ideas to one another by some measure.
3.1.12.E – Evaluate change in nature, physical systems and man made systems.
3.2.12.A – Evaluate the nature of scientific and technological knowledge.
3.2.12.B – Evaluate experimental information for appropriateness and adherence to relevant science processes.
3.2.12.C – Apply the elements of scientific inquiry to solve multi-step problems.
3.2.12.D – Analyze and use the technological design process to solve problems.
3.4.12.A – Apply concepts about the structure and properties of matter.
3.4.12.C – Apply the principles of motion and force.
3.4.12.D – Analyze the essential ideas about the composition and structure of the universe.
3.7.12.B – Evaluate appropriate instruments and apparatus to accurately measure materials and processes.
3.8.12.A – Synthesize and evaluate the interactions and constraints of science and technology on society.
3.8.12.C – Evaluate the consequences and impacts of scientific and technological solutions.

## Get help if you need it.

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# Assignments and Assessments

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|---|---|
| P. 171, 30–34 | due _____ |
| P. 171, 35–38 | due _____ |
| P. 171; 39–41 and 45 | due _____ |
| Friction on an Inclined Plane Lab | due _____ |
| Projectile Problems | due _____ |
| P. 172, 49–53 | due _____ |
| Projectiles Lab | due _____ |
| Chapter 7 Review | due _____ |
| Chapter 7 Test | date _____ |