

Aims and Objectives Relativity 1 and Vectors Session 11

ROCKET MOTION. DARK MATTER

Aims (What I want you to do)

- 1) To re-examine Newton's second law of motion when the mass of the object cannot be considered constant.
- 2) To see how the effect of gravity further modifies the law of motion of an object of variable mass.

Objectives (What you should be able to do after completing the worksheet)

- 1) To be able to recognise situations in which there is a change in mass of the object, and that the changing mass may affect its motion.
- 2) To be able to derive suitable equations of motion for objects of varying mass and to be able to use those equations to solve a range of variable mass problems.

Relativity 1 and Vectors PHY1105 Worksheet 11

- Task 1.** Read Young and Freedman sections 8.6 (12th ed).
- Task 2.** Do worked examples 8.15 and 8.16 from Young and Freedman (12th ed).
- Task 3.** Do exercises 8.56 and 8.59 from Young and Freedman (12th ed).
- Task 4.** Do problem 8.112 from Young and Freedman (12th ed).
- Task 5.** Read the section in Young and Freedman on Dark Matter. You might like also to look at <http://astron.berkeley.edu/~mwhite/darkmatter/dm.html>
- Task 6.** Read through sections 37.1 and 37.2 of Young and Freedman (12th ed) in preparation for next lecture.