

Exam 1 Period 1

1a Drag, Thrust, Lift, Gravity (acts straight down, not parallel)

b) Thrust

c) Third

d) Second $F=ma$

e) Higher velocity, higher drag force

f) larger drag force, less max height

2 a) i) higher

ii) credit for everyone, more subtle than planned

iii) moves down

iv) increases or remains the same

b) still stable consider, cite c_p, c_g

c) expected to increase, but fuller analysis: additional weight may offset this

d) less stable c_p, c_g and caption

3 a) initial thrust reduced

b) higher, lower initial velocity

4) fuel: mid range, pressure: max nose: small effect

Trials consistent with stated experience, at pressure should be at or near max

Reasoning must be consistent

5) a) 7

b) Recognize as Fermi problem with some numerical estimates