

## Math In The Movies - Top Gun Worksheet



### The Scenario

Top Gun is a blockbuster 1986 military film starring Tom Cruise in one of his earliest major roles. It probably did more for the military in recruiting pilots than any other movie or advertisement campaign they have ever done. With

fighter jets and action there are plenty of mathematical scenarios including carrier launches and landings and buzzing the control tower.

### Question 1 (2 marks)

Let's say an F-14 (the Top Gun movies had F-14s) leaves the carrier at about 350 km/hr, after being accelerated by the catapult for about 3.2 seconds. The final speed includes the carrier's speed which is already travelling at about 70 km/hr. Find the acceleration as the "number of gs"?

### Question 2 (2 marks)

Landing involves a deceleration from about 280 km/hr to zero in about 3 seconds. The carrier is moving in the same direction as the aircraft at 70 km/hr. Find the deceleration in units of gs.

### Question 3 (1 mark)

Maverick plans to buzz the tower, clearing it by 30 metres. His plane is flying at 800 km/hr, and he starts his line up 1200 metres out. Find the heading error (in degrees) that would result in him smashing into the control tower?