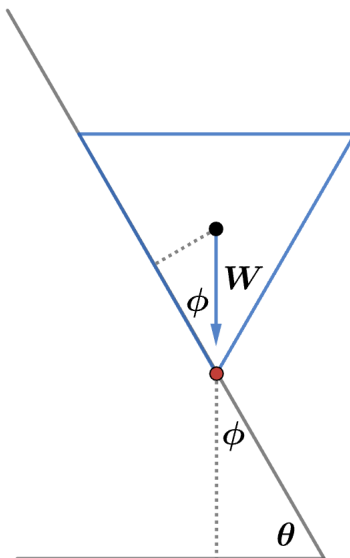


## 2012 F=ma Exam: Problem 3

Kevin S. Huang



When the triangle is about to topple over, the normal force and friction only act at the bottom right corner. If we choose this point as our pivot point, then only the weight  $W$  of the triangle contributes to the torque.

At the threshold of toppling, the torque is zero so the CM lies over the pivot point (for the weight to have no moment arm). For an equilateral triangle, we have

$$\phi = 30^\circ$$

$$\theta = 90^\circ - \phi = 60^\circ$$

so the answer is C.