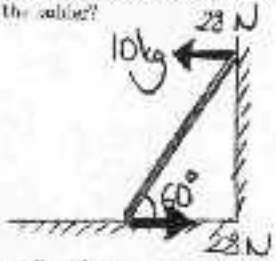
3) A rocket is launched from the surface of our planet with an initial speed of 11.2 km/s. What is the maximum height from Earth's surface that it is going to reach?

a) 132 km
b) 667 km
c) 1067 km
d) $6.50 \times 10^4$ km
e) None of the above

11.2 km/s = ESCAPE SPEED (from surface)
→ the rocket would never return.

4) A 10 kg ladder leans against a frictionless wall with an angle of 60° with respect to the horizontal. If the normal force that the wall exerts on the ladder is 28 N, what is the friction force that the ground exerts on the bottom of the ladder?

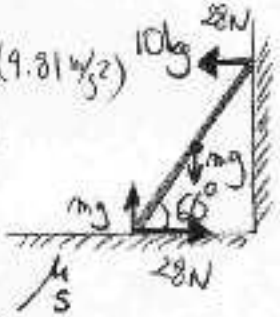
a) 98 N
b) 28 N
c) 38 N
d) 25 N
e) 33 N




5) A 10 kg ladder leans against a frictionless wall with an angle of 60° with respect to the horizontal. If the normal force that the wall exerts on the ladder is 28 N, what is the minimum coefficient of static friction $\mu_s$ on the ground to prevent the ladder from sliding?

a) 0.2
b) 0.3
c) 0.4
d) 0.5
e) 0.6

$mg = (10kg)(9.81 m/s^2) \simeq 98 N$




$f_s = 28N$
= MAX STATIC FRICTION
$= N \cdot \mu_s = (98N)\mu_s \rightarrow \mu_s = \frac{28}{98} \simeq 0.3$

$98N = mg$