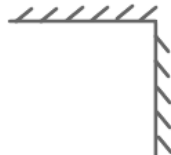


# End Of Year Quiz

1. How many neutrons are in an atom of Mg-26?
2. A sample of a radioactive isotope has been decaying over time. The half-life of the isotope is five minutes, and at this time there is 1g of the isotope remaining. How many grams of the isotope were present twenty minutes ago?
3. An egg of mass 140g is travelling at 2m/s. The egg is brought to a stop in 0.02s. What is the force (in newtons) exerted on the egg?
4. A cannon has a mass of 200kg. It fires a ball of mass 12kg at 100m/s. How fast does the cannon recoil?
5. A 10N weight is hung from a spring, and the spring extends to a total length of 20cm. 20N more weight is added, and the spring now extends to a total length of 30cm. What is the original length of the spring?
6. A 2kg mass is dropped from a tall tower. After it has fallen 22m, how fast is it travelling? (round to a whole number). Ignore air resistance.
7. A speaker is tested by leaving it running for a week playing a sound with a constant frequency. In that time, the speaker vibrates backwards and forwards 13,305,600 times. What is the frequency (in hertz) of the sound it has been playing?
8. Two mirrors are stood on their edges and placed at  $90^\circ$  to each other, so that when viewed from above they form an L shape:



Light from a ray box is directed towards the mirrors, and strikes one of the mirrors at an angle of incidence of  $76^\circ$ . What is the angle of reflection of the light ray as it leaves the other mirror?