graph – see excel file

Best fit value of H with unit = computer gives 64.7 kms−1Mpc−1 so allow 55-75

Answers to Questions:

1. Calculate the age of the universe using your value for *H*. Note that you will need to show your working for the conversion of the units into billion years (109).

gradient = 64.7

age = 1 ÷ 64.7 × 3.086 × 1016 × 106 ÷ 103 ÷ (60 × 60 × 24 × 365) ÷ 109 = 15 b.y.

(to check do 978.56 ÷ gradient) !!!!

2. Hubble originally found a value for the constant of 530 in the same units as your graph. What does this value give for the age of the universe? Show your working.

age = 1 ÷ 530 × 3.086 × 1013 × 106 ÷ 103 × (60 × 60 × 24 × 365) ÷ 109 = 1.8 billion years

3. In the 1950s, the famous astronomer Baade, more than **halved** Hubble’s original constant.

What affect did this have on Hubble's value of the age of the universe?

halving of the constant produces a **doubling** of the age of the Universe.

OR

greatly increase or increase by 6.5 billion years