30 A detector of ionising radiation gives a background count rate of 28 counts per minute. Samples of two radioactive nuclides, X and Y, are individually measured by the detector and each sample gives the same reading of 508 counts per minute. X has a half-life of 4 months and Y a half-life of 3 months. The samples are mixed together.

Assuming no change in background radiation levels, what will be the reading of the mixture after one year?

A 88
B 90
C 95
D 118

End of paper