MARKS

9. The specifications of corks for wine bottles call for corks whose diameters are between 2.90 and 3.10 cm. A cork which does not meet these specifications is classified as defective; if it is too small, it leaks and causes the wine to deteriorate, whereas a cork that is too large will not fit in the bottle.

6 Suppose there are two cork cutting machines; **Machine 1** produces corks whose diameters can be modelled by a normal distribution with mean 3.00 cm and standard deviation 0.05 cm, while **Machine 2** produces corks whose diameters can also be modelled by a normal distribution but with mean 3.05 cm and standard deviation 0.04 cm. Which machine would you recommend based on the anticipated proportion of defects? (Your answer needs to include explicit calculation of relevant normal probabilities.)

Machine number