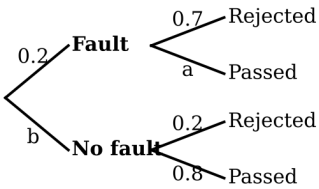
Day 34	A Tier 10-a-day

1 Here are the masses, in kg, of 7 parcels.
38 11 45 60 22 28 78
(a) Work out the median.
(b) Work out the interquartile range.

2 $E = \frac{1}{2}mv^2$
Work out the value of E when m = 4 and v = −5

3 The tree diagram shows probabilities for two events.
(a) Work out the values of a and b.
(b) Work out the probability that a part is rejected at the final check.



4 Triangle DEF: angle E = 90°, DF = 12 cm, DE = 5 cm.
Triangle JKL: angle L = 90°, JK = 12 cm, JL = 5 cm.
Are the two triangles congruent?
Give a reason for your answer.

5 A cafe menu has 2 starters, 6 main courses and 4 desserts.
(a) How many different three-course meals are possible?
(b) A customer chooses a main course and either a starter or a dessert (not both). How many different meals are possible?

Day 34	A Tier 10-a-day
6 Two similar model boats have heights 4 cm and 6 cm. The smaller one has a volume of 40 cm^3. Work out the volume of the larger one.	
7 (a) Factorise $4y^2 - 9z^2$ (b) Use the same idea to work out $69^2 - 31^2$ without a calculator.	
8 Nadia is paid £12.40 per hour for a basic week of 36 hours. (Calculator) Overtime is paid at time and a half. Last week Nadia worked 7 hours of overtime. Work out Nadia's total pay for the week.	
9 A cyclist travels 630 metres in 6.2 seconds. The distance is correct to the nearest 10 metres and the time to the nearest 0.1 second. (a) Work out the upper bound and the lower bound of the speed in m/s. (b) Write the speed to a suitable degree of accuracy. Give a reason for your answer.	
10 A horse is tied by a rope of length 10 m to the corner of a rectangular shed. The shed measures 14 m by 13 m. The horse can graze on any grass it can reach outside the shed. Work out the area it can graze. Give your answer in terms of π. The diagram is not drawn accurately. 