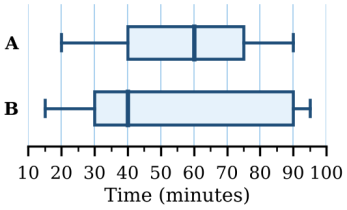
Day 241	S Tier 10-a-day
1 A price is increased by 100%. By what percentage must the new value be decreased to get back to the original value?	
2 30 beetles in a field are caught, marked and put back. Later, a second sample of 50 beetles is caught. 10 of these are marked. (a) Work out an estimate for the number of beetles in a field. (b) State one assumption you have made.	
3 Solve $2x^2 \leq 8$	
4 A is the point (0, 5) and B is the point (−8, 1). Find an equation of the perpendicular bisector of AB. Give your answer in the form ax + by = c, where a, b and c are integers.	
5 Zane changes £1100 into euros at £1 = €1.2. Zane spends €880 and then changes the rest back into pounds at £1 = €1.6. How many pounds does Zane get back?	

Day 241 **S Tier 10-a-day**

6 The line L has equation $8x + 15y = -120$.
L crosses the x-axis at the point A and the y-axis at the point B.
(a) Find the coordinates of A and B.
(b) Work out the area of triangle OAB, where O is the origin.

7 The box plots show the times taken by two groups, A and B.
(a) Work out the interquartile range for each.
(b) Compare the distributions of A and B.



8 A circle has equation $x^2 + y^2 = 625$.
The point P(24, −7) lies on the circle.
(a) Find the equation of the tangent to the circle at P. Give your answer in the form $ax + by = c$, where a, b and c are integers.
(b) The tangent meets the x-axis at the point T.
Write down the coordinates of T.

9 A right-angled triangle has base $(7 + \sqrt{6})$ cm and height $(7 - \sqrt{6})$ cm.
Show that the area of the triangle is a rational number.
Work out the area.

10 Solve $5 \sin x - 2 = 0$ for $0° \leq x \leq 360°$.
(Calculator)
Give your answers correct to 1 decimal place.