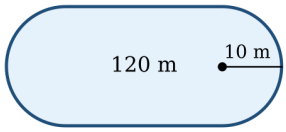
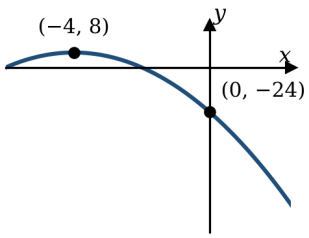
Day 149	S Tier 10-a-day
1 Factorise $3x^2 - 4x - 7$	
2 The mean of 7 numbers is 149. One number is removed and the mean of the remaining 6 numbers is 169. Work out the number that was removed.	
3 Here are six numbers. $\sqrt{0.25}$, $\sqrt{50}$, $(2 + \sqrt{5})(2 - \sqrt{5})$, $\sqrt{\frac{9}{16}}$, $(\sqrt{3})^2$, $3 + \sqrt{12}$ Write down the rational numbers.	
4 The diagram shows a running track made from a rectangle and two semicircles. (a) Work out the total length of the boundary of the track. (b) Work out the area enclosed by the track. Give your answers in terms of π. The diagram is not drawn accurately. 	
5 The ratio of juniors to seniors in a school is 2 : 1. 40% of the juniors and 10% of the seniors play a sport. What percentage of all of these students play a sport?	

Day 149 **S Tier 10-a-day**

6 Given that $\sqrt{6} = \sqrt{n}$,
find the value of n.

7 The diagram shows a sketch of a quadratic curve with a turning point at $(-4, 8)$.
The curve crosses the y-axis at $(0, -24)$.
Find an equation of the curve.
Give your answer in the form $y = ax^2 + bx + c$.



8 A force of 410 N acts on a surface, correct to 2 significant figures.
The area of the surface is 5.7 m^2, correct to 2 significant figures.
Work out the lower bound of the pressure.
Give your answer correct to 3 significant figures. (Calculator)

9 Prove algebraically that $k^3 + 23k$ is a multiple of 6 for all integer values of k.

10 The diagram shows triangle ABC. (Calculator)
Angle BAC = 41° and angle ABC is acute.
Work out the size of angle ABC, marked θ.
Give your answer correct to 1 decimal place.
The diagram is not drawn accurately.

