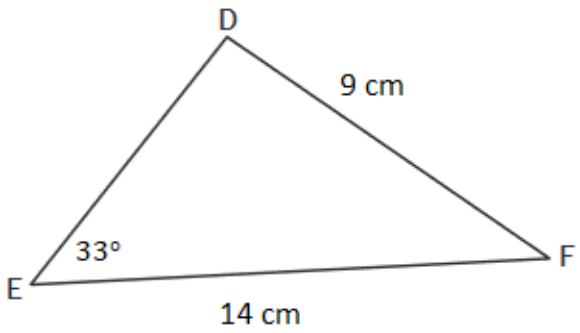
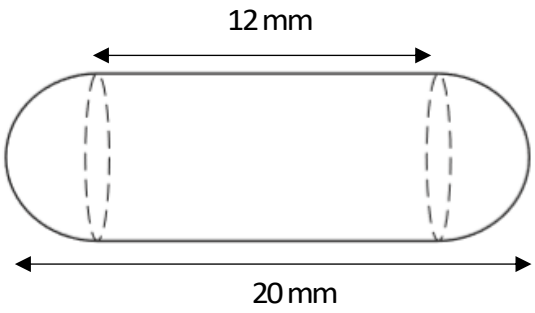
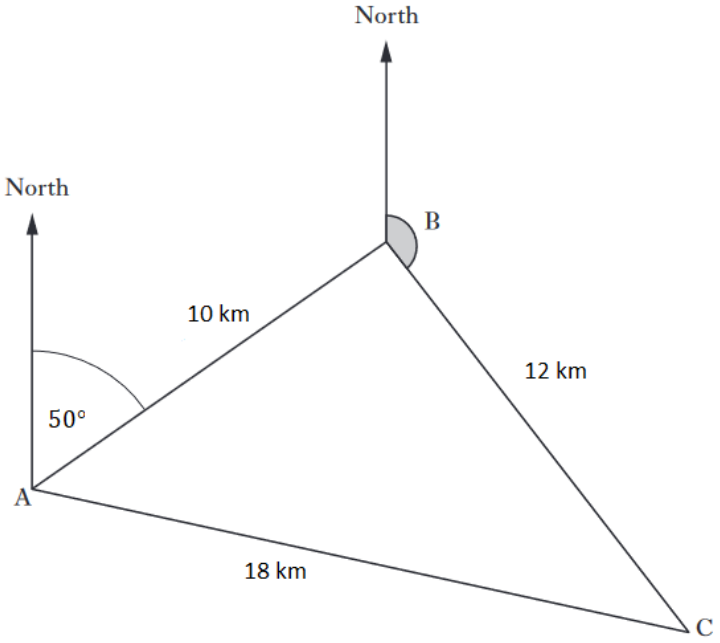
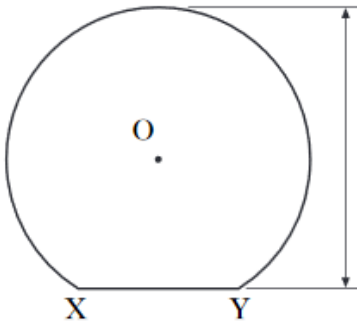
D2	Calculator Paper	
1	A litre of blood contains approximately 4.3×10^{12} red blood cells. On average an adult has 5.6 litres of blood. Calculate how many red blood cells an average person will have in their blood. Giver your answer in scientific notation.	2
2	 In triangle EDF: • Side EF is 14 centimetres • Side DF is 9 centimetres • Angles DEF is $33°$	3
3	A health food shop produces probiotic capsules for its customers. Each capsule is in the shape of a cylinder with hemispherical eds as show below  The total length of the capsule is 20 millimetres. The length of the cylinder is 15 millimetres. Calculate the volume of one capsule. Give your answer correct to **2 significant figures**.	5
4	Express $x^2 - 10x + 22$ in the form $(x - a)^2 + b$	2
5	Factorise $6x^2 + x - 7$	2
6	552 000 tickets were sold for a sporting event. 8% of the available tickets were left unsold. Calculate the total number of tickets available for this event.	3

7	In a race, boats sail around three buoys represented by A, B and C in the diagram.  B is 10 kilometres from A on a bearing of $050°$ C is 12 kilometres from B. A is 18 kilometres from C. (a) Calculate the size of angle ABC (b) Hence find the size of the shaded angle.	3 2
8	The diagram shows a cross-section of a tunnel. This consists of part of a circle with a centre O and a horizontal base. The circle has radius of 1.7 metres. Chord XY is 1.8 metres. Calculate the height of the tunnel.  	4
9	A ferris wheel turns at a steady rate. The height, h metres, of one of the cars above the ground at a time t seconds is given by the formula $$h = 7 + 5\sin t$$  Find the two times when the car is at a height of 10.8 metres above the ground	4
	30 marks	