Christ Church Foundation School

4th Form Mathematics Assignment I

**Due: 31st January 2017**

ATTEMPT ALL QUESTIONS. READ THE INSTRUCTIONS CAREFULLY. HAND IN NEAT AND TIDY WORK

1. A bus left town A at 09:05 hours and travelled to town B 48km away, at an average speed of 80 km/h.
	1. At what time did the bus arrive at town B? **[3 marks]**

On its return journey, the bus took 45 minutes to travel from town B to town A. Calculate the average speed of the bus in km/h for

* 1. the return trip from town B to town A **[2 marks]**
	2. the entire journey, giving your answer correct to 3 s.f. **[2 marks]**

***The diagram below relates to question 2***



1. The diagram above shows a water tank (not drawn to scale) in the shape of a right prism. AB=25cm, AC= 40cm and the length of the tank is 1.2 m. Calculate
	1. the volume of the tank in cm3 **[2 marks]**
	2. the depth of the water in the tank when it contains 45 litres **[3 marks]**
2. A survey conducted among a group of 50 students showed that

30 students played football

9 students played cricket and football

x students played neither sport

3x students played cricket only

* 1. Draw a clearly labelled Venn diagram to illustrate the information above

**[3 marks]**

* 1. Determine the number of students who played cricket **[3 marks]**
1. A man deposits $800 in his account at a bank which offers 6% simple interest per annum.
	1. How much interest would he receive on the $800 after 9 months? **[2 marks]**
	2. How long would it take for the $800 to increase to $992? **[3 marks]**
2. The distance-time graph above shows the journey of a van and a jeep. At 8:00 am, the van left Town A and travelled to Town B. Later the jeep left Town B and travelled along the same road, but in the opposite direction, to Town A.
	1. Using the graph determine
		1. the distance between Town A and B **[1 mark]**
		2. the distance between the two vehicles at 09:00hrs **[1 mark]**
		3. the time at which the vehicles meet **[1 mark]**
		4. the average speed of the jeep the entire journey **[1 mark]**
	2. Using the graph determine the following for the jeep
		1. the time it left Town B **[1 mark]**
		2. the time it arrived at Town A **[1 mark]**
		3. the time at which it first stopped **[1 mark]**
		4. the distance it travelled before it first stopped **[1 mark]**
		5. the average speed before the first stop **[1 mark]**
		6. the average speed after the first stop **[1 mark]**
3. Given that m \* r = m2 – rm
	1. Evaluate 5 \* 3 **[2 marks]**
	2. Solve for g given that g \* 4 = -3 **[3 marks]**
4. **Using a ruler, pencil and a pair of compasses only**
	1. Construct a triangle ABC in which AB = 8cm, ∠BAC = 600 and AC = 5cm.

**[4 marks]**

* + 1. Measure and state the length of BC **[1 mark]**
		2. Find the perimeter of ∆ ABC **[1 mark]**
		3. Draw on your diagram the line CD which is perpendicular to AB and meets AB at a point D **[2 marks]**
		4. Determine the length of CD **[2 marks]**
		5. Calculate the area ∆ ABC giving your answer to 1dp **[2 marks]**
	1. Construct a parallelogram WXYZ where WX = 5.5cm, WZ = 7.0cm and ∠XWZ = 600. **[4 marks]**
		1. Draw the diagonal XZ. Measure and state its length. **[2 marks]**

***Marks in question 7 are given for the construction lines***