Number Revision 1

1) (a) The length of a girder has expanded from 4.5m to 4.58m due to the heat. By what percentage has it expanded?
(b) A shop buys radios and sells them for £34.80, making 16% profit. How much does it buy them for?

2)(a) Give the upper and lower bounds of the following numbers, which have been measured to the degree of accuracy stated:
(i) 340g (to nearest 10g) (iv) 5.3kg (to 1dp)

(b) The speed of an object is given by the formula $s = \frac{d}{t}$

If d = 580 m (to th nearest 10) and t = 12.4s,(to 1dp)
(i) Find the upper bound of the speed
(ii) Find the lower bound of the speed
(iii) Write the speed as accurately as can be justified by the above calculations.

3) (a) A plank of wood 240cm long weighs 3.9kg. How much would a plank of the same wood 320cm long weigh?
(b) My car travels 64km on 5 litres of petrol. How far would it travel on 7 litres?

4) (a) In a certain school, girls outnumber boys in the ratio 5:3. If there are 720 boys in the school, how many girls are there?
(b) A car's cooling system contains antifreeze and water in the ratio 3:7. If it holds 8 litres of liquid, how much of this is antifreeze?

5) Round off the following:
(a) 3.2608 to 2dp (b) 526800 to 2sf (d) 0.0367 to 2sf (e) 12.697 to 2dp

6) State the values of a, b, c and d in the following:
(a) $3^a = \frac{1}{9}$ (b) $5^b = 1$ (c) $8^c = 2$ (d) $25^d = \frac{1}{5}$

7) I set off on a 130 mile car journey at 9.00am. The first 10 miles were through heavy traffic, and took me 40 minutes.
(a) What is my average speed for this part of the journey?
I then got onto open road, and covered the remainder of the journey at a steady 50mph.
(b) How long did the remainder of the journey take me?

8) (a) Write the number 1864900 in standard form
(b) Calculate, and give the answer in standard form to 3sf: $(3.83 \times 10^8) \times (5.46 \times 10^{-4})$

9) Use a calculator to work out the following, giving answers to 3sf:
(a) 1.35^8 (b) $\sqrt{3.4^2 - 2.8^2}$ (c) $(2.43 \times 10^{-8})^3$

10)(a) Write (i) 1260 and (ii) 1848 in prime factors.
(b) What is the HCF of 1260 and 1848? What is their LCM?
(c) List **all** the factors of (i) 20 (ii) 48 (iii) 25

Number Revision 2

1) (a) A girder 3.6m long expands by 15% because of the heat. What is its new length?
(b) A shop reduces the price of radios by 35% in a sale. The sale price is £19.50. What was the price before the sale?

2)(a) Give the upper and lower bounds of the following numbers, which have been measured to the degree of accuracy stated:
(i) 380g (to nearest 10g) (iv) 5.9kg (to 1dp)

(b) The speed of an object is given by the formula $s = \frac{d}{t}$

If d = 460 m (to th nearest 10) and t = 13.2s,(to 1dp)
(i) Find the upper bound of the speed
(ii) Find the lower bound of the speed
(iii) Write the speed as accurately as can be justified by the above calculations.

3) (a) A plank of wood 420cm long weighs 5.6kg. How much would a plank of the same wood 270cm long weigh?
(b) My car travels 64km on 6 litres of petrol. How many litres would be needed to travel 80km?

4) (a) In a certain school, girls outnumber boys in the ratio 4:3. If there are 720 girls in the school, how many boyss are there?
(b) A car's cooling system contains antifreeze and water in the ratio 2:9. If it holds 5.5 litres of liquid, how much of this is water?

5) A train completes a journey of 180 miles at a speed of 80mph. How long does the journey take?

6) (a) Write the number 25000000 in standard form
(b) Calculate giving the answer in standard form to 3sf: $(7.14 \times 10^{12}) \times (4.38 \times 10^{-9})$

7) Write these numbers to 1 significant figure: (a) 0.0867 (b) 9.715

Number Revision 3

1) (a) An animal was weighed at age 3 weeks and found to weigh 2.6kg. One week later it weighed 3.5kg. By what percentage had its weight increased?

   (b) A shop buys radios for £24.50 and sells them at 16% profit. How much does it sell them for?

   (c) The population of puffins on an island is decreasing by 8% each year. If there were 5000 puffins in 2005, how many will there be in 2010?

2) (a) Out of 640 pupils in a school, 112 wear glasses. What percentage of the pupils wear glasses?

   (b) After VAT of 17.5% has been added, the cost of a microwave is £70.50. What is the cost before the VAT is added?

   (c) 35% of a man's monthly income is used to pay his mortgage repayment, which is £700 per month. What is the man's monthly income?

3) (a) In a certain school, girls outnumber boys in the ratio 5:3. If there are 720 boys in the school, how many girls are there?

   (b) A car's cooling system contains antifreeze and water in the ratio 3:7. If it holds 8 litres of liquid, how much of this is antifreeze?

4) A car travels at 24 m/s for 5 seconds. If each value is given to the nearest whole number, find the greatest distance the car could have travelled.

5) A packing case measures 1.5m by 80cm by 30cm.

   (a) What is its volume (i) in cm^3 (ii) in m^3?

   (b) What is its surface area (i) in cm^2 (ii) in m^2

Number Revision 4

1) If $a = 2800$ (to 2sf), $b = 380$ (to 3sf), and $c = 0.047$ (to 2sf), find the lower and upper bounds of:

   (a) a (b) b (c) c (d) ab (e) $\frac{a}{c}$

2) Use your calculator to evaluate the following. Give your answers in standard form to 3 significant figures.

   (a) $\sqrt[5]{7.48\times10^{20}}$ (b) $\left(\frac{2.36\times10^{-7}}{6.4\times10^{8}}\right)^4$

3) A team of 12 people can paint a house in 15 days. How long would it take 20 people?

4) The angles of a triangle are in the ratio 2:3:4. Find the size of each angle.

5) The scale of a map is 1:5000. A reservoir is a rectangle 2cm by 3cm on the map. What is the area of the actual reservoir in m^2?

6) The exchange rate between dollars and Euros is 1 dollar to 0.735 euros.
   (a) Change 50 euros into dollars.
   (b) change 50 dollars into euros.

7) (a) A camera has been reduced in price by 18%.. It now costs £98.40. What was the price before the reduction?

   (b) A sunflower 1.5 metres tall increases in height by 8cm. What percentage increase is this?

   (c) The value of a computer falls by 20% each year. If it cost £900 when new, what will it be worth after 5 years?

8) (a) A train is travelling at 120km/h. How far will it travel in 5 minutes?
   (b) A train travels 1km in 25 seconds. What is its speed in km/h?
   (c) A train is travelling at 28m/s. How long will it take to travel 70km?