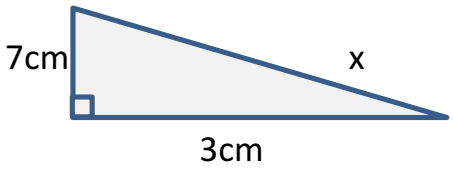
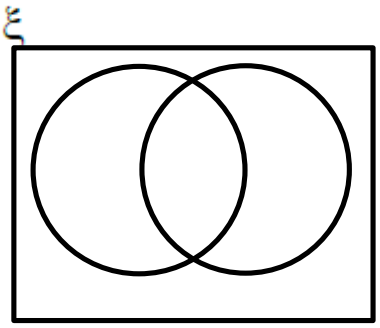
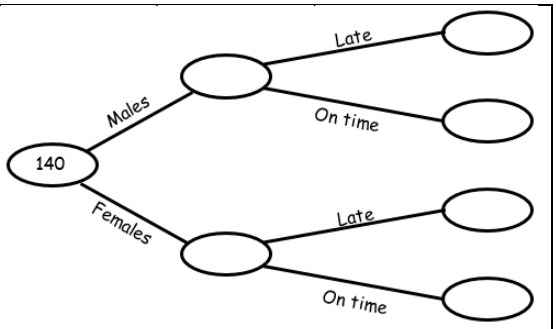
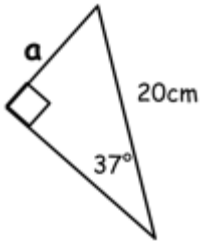
Higher/Foundation Topic

MASTERS

Homework 1

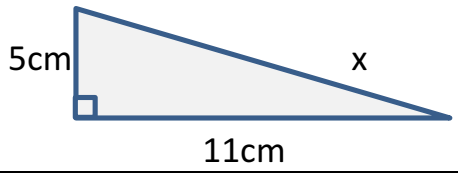
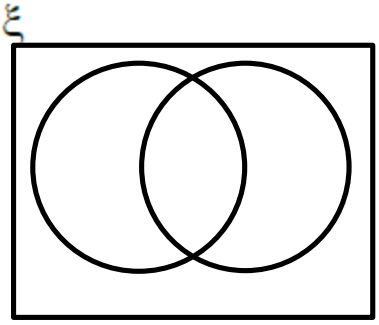
Q	Question	Answer
1	The four possible outcomes of an experiment are A, B, C and D. P(A) = 0.16 P(A) = 2P(B) P(C)=P(D) Work out P(C)	
2	Work out $(2.3\times10^{3})\times(4.1\times10^{5})$ Give your answer in **standard form**	
3	**Factorise** and **solve** $x^{2}+3x-18=0$	
4	The volume of a sphere is $\frac{4}{3}\pi r^{3}$ Work out the **volume of a sphere** with a radius of 6cm to 3 sf	
5	Calculate the length of x to 2dp  	
6	Students in sixth form are comparing their favourite fruit. 63 students like apples 89 students like bananas 15 students like both apples and bananas 54 students do not like either How many students are there in sixth form? You may use the **Venn diagram** to help you.	

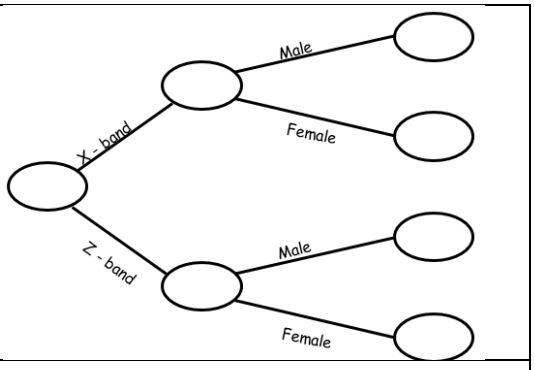
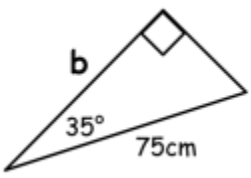
7	There are 140 pupils in Year 7. 75 are male, of these 14 were late to school on Monday. There were 8 girls who were late to school on Monday. Use this information to complete this **frequency tree**.	
8	A and B are different routes between 2 towns. The distance and **average speed** for each is Route A 25 miles at 50 mph Route B 20 miles at 30 mph Which route takes the least time? **Show your working**	
9	James invests £2000 in a bank account with a **compound interest** rate of 1.3%. Write a calculation that would give you the amount he has after 5 years.	
10	Betty sells t-shirts. She charges £7 a t-shirt She charges 10% extra for it gift wrapped. One day Betty sells 74 t-shirts and 12 of these are asked to be gift wrapped. Work out the total amount of money that Betty earned that day.	
11	Solve the **simultaneous equations** 5x+2y=4 4x-y=11	
12	 Calculate the missing side of the triangle.	
Total out of 12		

Higher/Foundation Topic

MASTERS

Homework 2

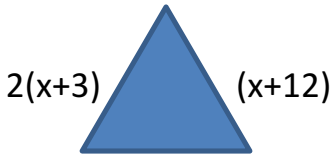
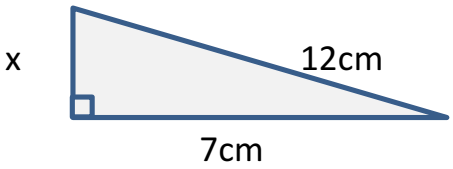
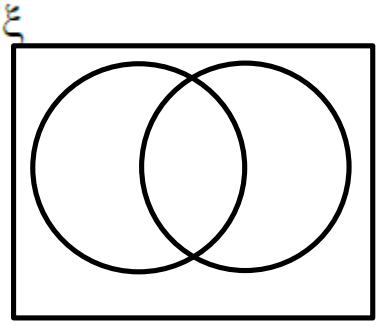
Q	Question	Answer
1	The four possible outcomes of an experiment are A, B, C and D. P(A) = 0.1 3P(A) = 2P(B) P(C)=P(D) Work out P(C)	
2	Work out $(3.5\times10^{4})\times(2.7\times10^{7})$ Give your answer in **standard form**	
3	The diagram shows a square. (7x-3)  3(x+1) Work out the length of the square	
4	The volume of a sphere is $\frac{4}{3}\pi r^3$ Work out the **volume of a sphere** with a radius of 7cm to 3 sf	
5	Calculate the length of x to 2dp  	
6	Complete the **Venn diagram** with the following information: 90 students take Biology 35 students take both Biology and Geography 18 students take Geography but do not take Biology There are 250 students in total.	

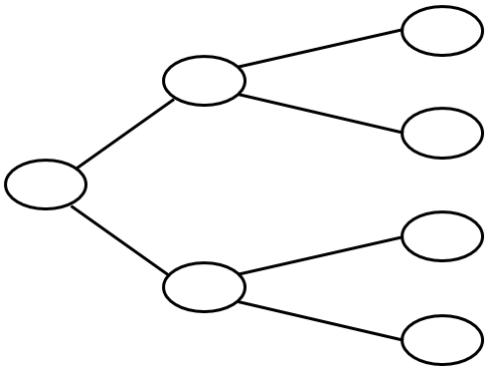
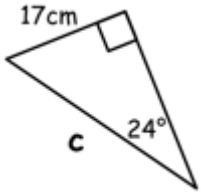
7	Year 9 has 250 students. There are 2 bands in year 9: X band and Z band. There are 140 pupils in X band, of these 80 are female. There are 65 males in Z band. Complete the **frequency tree**	
8	A and B are different routes. The time and **average speed** for each is Route A 30 minutes at 67 mph Route B 75 minutes at 30 mph Which route is the longest distance? **Show your working**	
9	James invests £4500 in a bank account with a **compound interest** rate of 5.2%. Write a calculation that would give you the amount he has after 2 years.	
10	John has created an app that he sells for £1.50. On Saturday 1200 people downloaded the app. Sales increased by 14% on Sunday. The app store takes 5% of all money earned. Work out the total amount of money that John received that weekend.	
11	Solve the **simultaneous equations** 4x+3y=37 2x+y=17	
12	 Calculate the missing side of the triangle.	
Total out of 12		

Higher/Foundation Topic

MASTERS

Homework 3

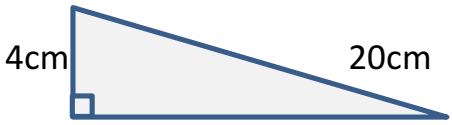
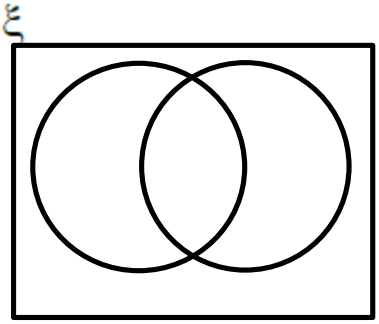
Q	Question	Answer
1	The four possible outcomes of an experiment are A, B, C and D. P(A) = 0.2 2P(A) = P(B) 3P(C)=P(D) Work out P(C)	
2	Work out $(5.1\times10^{-3})\times(3.2\times10^{5})$ Give your answer in **standard form**	
3	The diagram shows an equilateral triangle.  Work out the perimeter of the shape.	
4	The volume of a sphere is $\frac{4}{3}\pi r^3$ Work out the **volume of a sphere** with a radius of 2.5cm to 3 sf	
5	Calculate the length of x to 2dp  	
6	A group of 200 Year 7 students are asked if they own a dog or a cat. 32 own both a dog and a cat; 25 students only have a cat; 95 students own a dog. Produce a **Venn diagram** to represent this situation.	

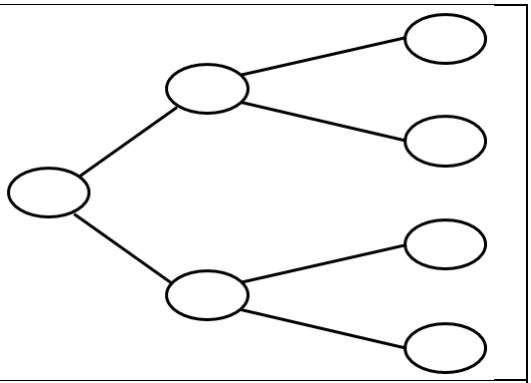
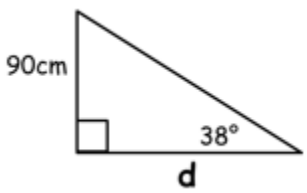
7	There are 100 members of a swimming club. 48 of the members are male. 17 of the male members are under 12, the rest are over 15. 26 of the female members are under 12, the rest are over 15 Complete the **frequency tree**	
8	A and B are different routes. The time and distance for each is Route A 25 minutes for 50,000m Route B 2hours for 238km Which route has the highest **average speed**? **Show your working**	
9	James invests £6000 in a bank account with a **compound interest** rate of 1.25%. Write a calculation that would give you the amount he has after 8 years.	
10	A baker supplies bread rolls to a catering company. Bread rolls are sold in packs of 24 for £1.99. The company want 500 rolls each day. How much will the bill be for one week, assuming they do not work on Sundays?	
11	Solve the **simultaneous equations** X+3y=7 2x-y=7	
12	 Calculate the missing side of the triangle.	
Total out of 12		

Higher/Foundation Topic

MASTERS

Homework 4

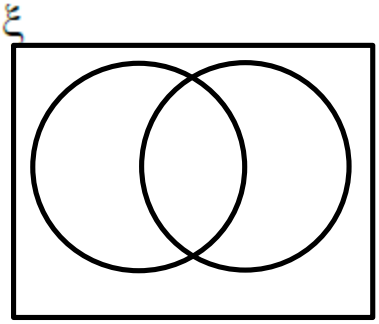
Q	Question	Answer
1	The four possible outcomes of an experiment are A, B, C and D. P(A) = 0.1 2P(A) = P(B) 4P(C)=3P(D) Work out P(C)	
2	Work out $(5.7\times10^{8})\times(4.4\times10^{-5})$ Give your answer in **standard form**	
3	The diagram shows a square. 5(x-2)  3(x+4) Work out the area of the square	
4	The volume of a sphere is $\frac{4}{3}\pi r^3$ Work out the **volume of a sphere** with a radius of 5cm to 1 sf	
5	Calculate the length of x to 2dp  	
6	A group of 50 children are asked if they like drinking fruit juice (F) or milk (M) for their school lunch. 13 students said they like both drinks; 11 only like milk and 20 children like drinking fruit juice. Complete the **Venn diagram**	

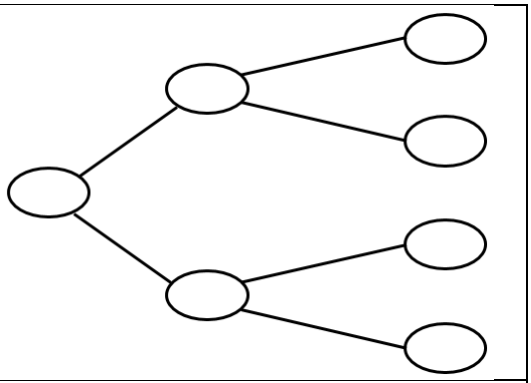
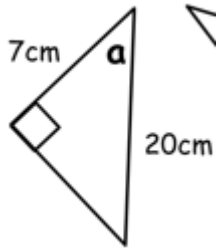
7	78 people sat their driving test. 43 are male, out of these 32 pass. 8 females fail their driving test Complete the **frequency tree**	
8	A cyclist leaves home at 7.30 for work, which is 9miles away. She travels at an average speed of 8mph for 30 minutes before stopping for 5 minutes to fix a puncture. She then cycles at 15mph for the remainder of the journey. Will she arrive at work before 8.30? **Show your working**	
9	James invests £1000 in a bank account with a **compound interest** rate of 2.2%. After 2 years the rate changes to 3%. Calculate how much he has after 5 years.	
10	Howard spends £10 a day on food. In January this represented one quarter of his net income. How much net income did Howard receive in January?	
11	Solve the **simultaneous equations** 2x+3y=19 6x+2y=22	
12	 Calculate the missing side of the triangle.	
Total out of 12		

Higher/Foundation Topic

MASTERS

Homework 5

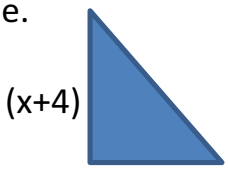
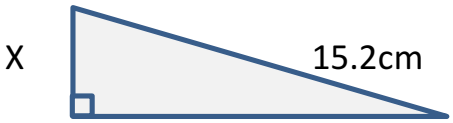
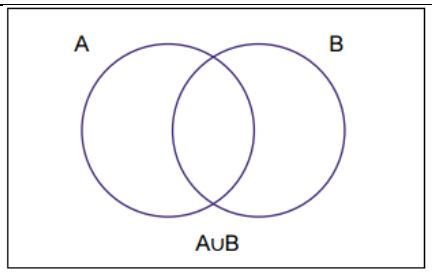
Q	Question	Answer
1	The four possible outcomes of an experiment are A, B, C and D. P(A) = 0.1 3P(A) = 2P(B) 2P(C)=P(D) Work out P(C)	
2	Work out $(9.7\times10^{5})\div(2.25\times10^{3})$ Give your answer in **standard form**	
3	The diagram shows a square. 3(2x+3)  5(2x+1) Work out the perimeter of the square	
4	The volume of a sphere is $\frac{4}{3}\pi r^3$ Work out the **volume of a sphere** with a radius of 8cm to 4 sf	
5	Calculate the length of x to 2dp  	
6	A police officer keeps records of the faults on 90 cars he checks. 62 cars have no faults, 17 cars have an illegal tyre (T) and 20 cars have a light that does not work (L). Complete the **Venn diagram**	

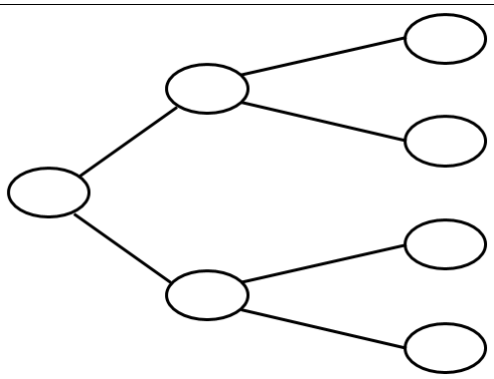
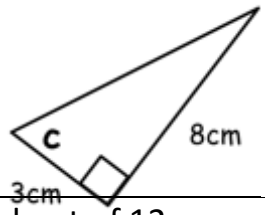
7	There are 29 students in a class. 12 are boys and of which 2 are left handed. There are twice as many girls that are left handed. Complete the **frequency tree** with this information	
8	A walker sets off at 9.00am from point P to walk along a trail at a steady pace of 6km per hour. 90 minutes later a cyclist sets off from P on the same trail at a steady pace of 15km per hour. At what time does the cyclist overtake the walker? **Show your working**	
9	James invests £2000 in a bank account with a **compound interest** rate of 3.5%. After 1 year the rate changes to 3%. Calculate how much he has after 3 years from the start.	
10	Tim spends 12p per unit of electricity used. At the beginning of January the meter read 12320 units and at the end of the month it read 13565 units. This represented 11% of his net income. How much net income did Tim receive in January?	
11	Solve the **simultaneous equations** 5x-2y=26 3x-y=15	
12	 Calculate the angle a to 2 dp	
Total out of 12		

Higher/Foundation Topic

MASTERS

Homework 6

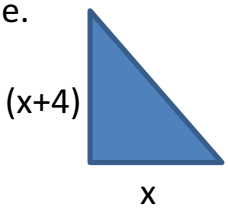
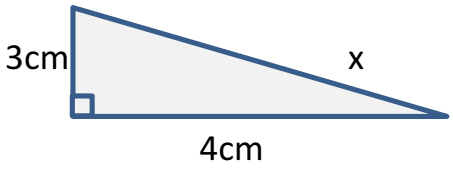
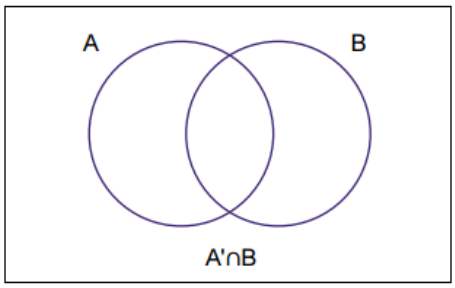
Q	Question	Answer
1	The four possible mutually exclusive outcomes of an experiment are A, B, C and D. P(A) = 0.2 3P(A) = 2P(B) P(C)=P(D) Work out P(CUA)	
2	Work out $(2\times10^{-4})\div(5\times10^{7})$ Give your answer in **standard form**	
3	The diagram shows a right angled triangle.  The area is $32cm^2$. Work out the value of x	
4	The volume of a sphere is $\frac{4}{3}\pi r^3$ Work out the **volume of a sphere** with a diameter of 11cm to 3 sf	
5	Calculate the length of x to 2dp  	
6	For the region stated, shade the appropriate region on the **Venn diagram**.	

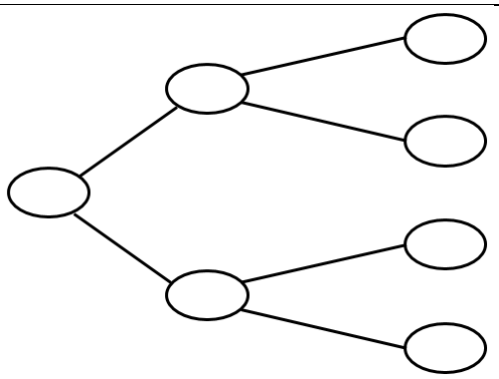
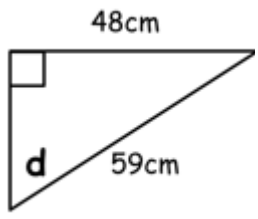
7	There are 32 students in a class. $\frac{3}{8}$ of them are boys, boys that wear glasses to boys that don't are in the ratio 1:2 respectively. There are half as many girls that wear glasses as boys. Complete the **frequency tree** with this information	
8	Daniel is going to drive 130 miles from Hull to Liverpool. There are road works for 25 miles of the journey. He assumes his average **speed** will be 50 mph where there are road works and 70 mph for the rest of the journey. Work out his journey time.	
9	James invests £4500 in a bank account with a **compound interest** rate of 5.2%. After 1 year he withdraws £1000. Calculate how much money is in the account after 3 years from the start.	
10	Trudy spends 13p per unit of electricity used. At the beginning of January the meter read 39667 units and at the end of the month it read 42254 units. This represented 12.5% of his net income. How much net income did Trudy receive in January?	
11	Solve the **simultaneous equations** 10x-y=3 3x+2y=17	
12	 Calculate the angle c to 2 dp.	
Total out of 12		

Higher/Foundation Topic

MASTERS

Homework 7

Q	Question	Answer
1	The four possible mutually exclusive outcomes of an experiment are A, B, C and D. P(A) = 0.07 P(A) = 2P(B) P(C)=P(D) Work out P(CUB)	
2	Work out $(1.8\times10^{4})\div(9\times10^{-2})$ Give your answer in **standard form**	
3	The diagram shows a right angled triangle.  The area is $6cm^2$. Work out the value of x	
4	The volume of a sphere is $\frac{4}{3}\pi r^3$ Work out the **volume of a sphere** with a diameter of 7cm to 3 sf	
5	Calculate the length of x  	
6	For the region stated, shade the appropriate region on the **Venn diagram**.	

7	There are 30 students in a class. $\frac{3}{5}$ of them are boys. 9 of the girls have completed their homework and half of the class overall completed their homework. Complete the **frequency tree** with this information	
8	How much longer does it take to travel 100 miles at 65mph than at 70mph to the nearest minute? **Show your working**	
9	James invests £300 in a bank account with a **compound interest** rate of 2.5%. How many years will it take James to save £330.	
10	Hamaad's salary increased by 5% in one year and then increased by 5% again in the second year. His new salary is £19845. How much was the increase in the first year, in pounds?	
11	Solve the **simultaneous equations** 5x-2y=24 3x+y=21	
12	 Calculate the angle d to 2 dp.	
Total out of 12		