Test 3 Revision Topics 9-12

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| Topic 9 | *ABCD* is a rectangle with length 25 cm and width 10 cm.  The length of is increased by 10%.  The width is increased by 20%.  Find the percentage increase in the area of the rectangle. | | | Arnie saw a camera priced at £250 in London. He saw the same camera for $297.50 in New York.  This is a 30% saving.  How many dollars are there to the pound? | | In a village 35% of the population are female.  60% of the females have blue eyes.  38% of the males have blue eyes.  What percentage of the population of the village have blue eyes? | In a company, the ratio of the number of men to women is 3:2.  40% of the men are under 25.  10% of the women are under 25.  What percentage of all of the people in the company are aged under 25? |
| Topic 9 | Daniel bakes 420 cakes.  He bakes only vanilla, banana, lemon and chocolate cakes.  are vanilla cakes.  35% are banana cakes.  The ratio lemon to chocolate is 4:5  Work out the number of lemon cakes Daniel bakes. | | | On a school trip the ratio of the teachers to students is 1 : 15  The ratio of the male students to female students is 7 : 5  Work out what percentage of all the people on the trip are female students.  Give your answer correct to the nearest whole number. | | Kim, Laura and Molly share £385  The ratio of the amount of money Kim gets to the amount of money Molly gets is 2 : 5  Kim gets £105 less than Molly gets.  What percentage of the £385 does Laura get? | Colin, Dave and Emma share some money.  Colin gets of the money.  Emma and Dave share the rest of the money in the ratio 3 : 2  What is Dave's share of the money? |
| Topic 10 | *ABC* is an equilateral triangle. *AD* is perpendicular to *BC*.  Prove that triangle *ADC* is congruent to triangle *ADB*. | | Explain why triangle *ABE* and triangle *CDE* are similar. | | | Calculate the length ED. | Jim makes a model of his school.  He uses a scale of 1 : 50  The area of the door on his model is 8 cm2.  Work out the area of the real door in the school. | | |
| Topic 11 | *A*(−2, 1), *B*(6, 5) and *C*(4, *k*) are the vertices of a right-angled triangle *ABC*.  Angle *ABC* is the right angle.  Find an equation of the line that passes through *A* and *C*.  Give your answer in the form  *ay* + *bx* = *c* where *a*, *b* and *c* are integers. | *P* has coordinates (–9,7)  *Q* has coordinates (11, 12)  *M* is the point on the line segment *PQ* such that *PM* : *MQ* = 2 : 3  Line **L** is perpendicular to the line segment *PQ*.  **L** passes through *M*.  Find an equation of **L**. | | | Find an equation of the line that passes through *C* and is perpendicular to *AB*. | | | |
| Topic 12 | Tom wants to estimate the number of termites in a nest.  On Monday Tom catches 80 termites. He puts a mark on each termite.  He then puts all 80 termites back in the nest.  On Tuesday he catches 60 termites.  12 of these termites have a mark on them.  Work out an estimate for the total number of termites in the nest.  You must write down any assumptions you have made. | | | | A scientist wants to estimate the number of fish in a disused canal.  He catches a sample of 30 fish from the canal.  He marks each fish with a dye and then puts them back in the canal.  The next day the scientist catches 20 fish from the canal.  He finds that 4 of them are marked with the dye.  Estimate the total number of fish in the canal. | | | |