GCE O/L December 2010
Mathematics 1

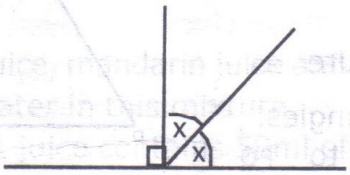
Part A

1. Simplify $\frac{1}{2} \times \frac{1}{5}$

2. If $x - 3 = 5$ find the value of x.

3. Simplify 0.4×6

4. Find the value of x in the figure.



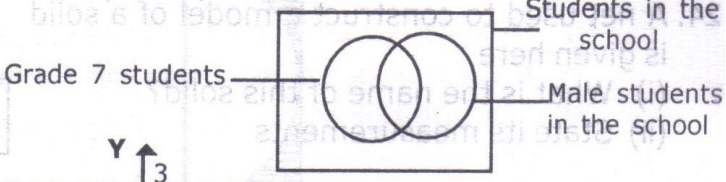
5. If the price of 3 oranges is 72 rupees, what is the price of one orange in rupees?

6. Simplify $(a^{-2})^3$

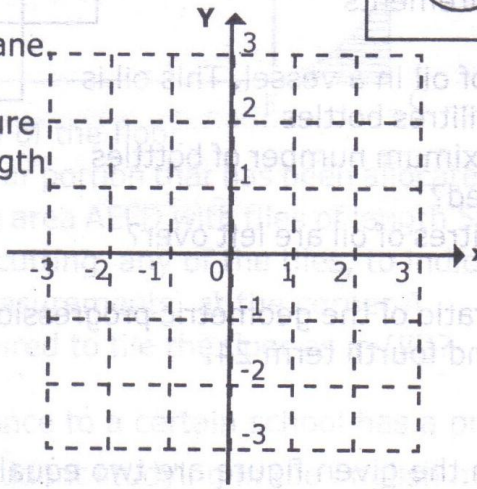
7. The mode of the group of data 3, 4, 5, 4, 6, x, 6, 8 is 4. Find the value of x.

8. The length of a side of a square is 5 units. What is its area in square units?

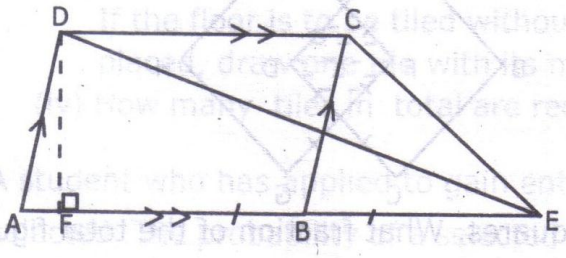
9. In the given Venn diagram, shade the region that represents the female students of Grade 7.



10. Mark the point (2 , 1) on the coordinate plane.



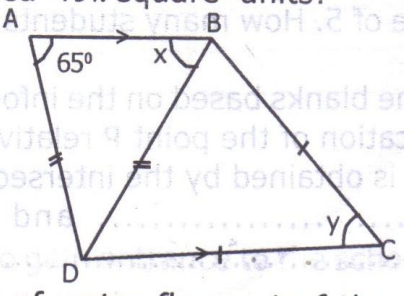
11. The area of the triangle ADE in the given figure is 48cm², DF = 6cm and AB = BE Find the length of DC in centimetres.



12. Solve $2^x = \frac{1}{64}$

13. How many units is the length of the diameter of a circle of area 49π square units?

14. Find the values of x and y based on the information given in the diagram.



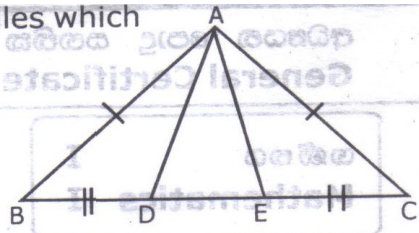
x = ...
y = ...

15. Water flows through a pipe at a uniform speed. If 40 litres of water flow out of the pipe in 10 seconds what is the speed at which the water flows out of the pipe in litres per minute?

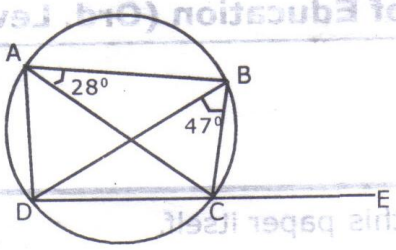
16. In the triangle ABC, AB = AC and BD = CE. Name two pairs of triangles which are congruent.

(i) .....

(ii) .....



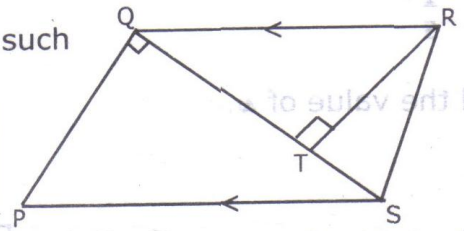
17. Factorize $32 - 2a^2$



18. Find the magnitude of the $\hat{BCE}$ based on the information in the figure

19. P and Q are two disjoint sets. PUQ = {3, 5, 7, 9, 11} and P = {3, 9} Write down the set Q.

20. What are the positive integers that x can take such that the inequality $2x + 1 < 6$ is satisfied?



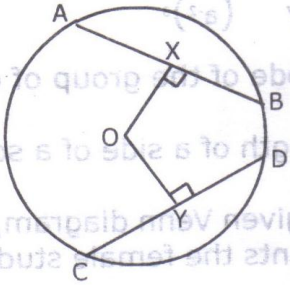
21. Based on the information in the figure

(i) Name a pair of equi-angular triangles.

(ii) Write down another ratio equal to $\frac{PQ}{TR}$

22. Two men take 3 days to paint a house in a housing scheme. How many men are required to complete the task of painting 10 such houses in 12 days?

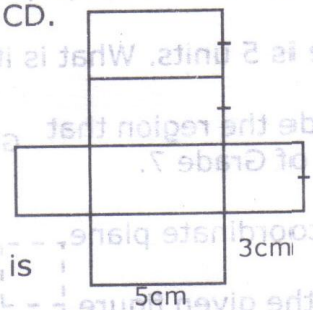
23. AB and CD are two chords of the circle with centre O. If OX = OY, Write down a relationship between AB and CD.



24. A net used to construct a model of a solid is given here

(i) What is the name of this solid?

(ii) State its measurements

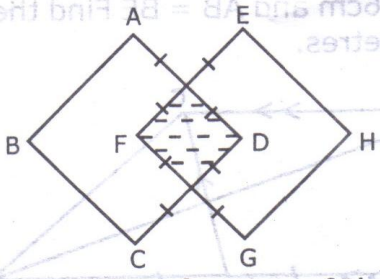


25. There are 8 litres of oil in a vessel. This oil is used to fill 750 millilitres bottles

(i) What is the maximum number of botttles that can be filled?

(ii) How many millitres of oil are left over?

26. Find the common ratio of the geometric progression with first term 3 and fourth term 24.

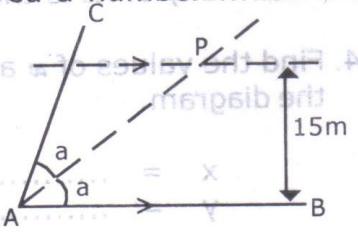


27. ABCD and EFGH in the given figure are two equal squares. What fraction of the total figure is the shaded area equal to?

28. 80 cards on which the number 1 to 80 are written respectively were distributed among 80 students such that each student gets one card. Rs 2 was given to each student who received a number which is a multiple of 2 and Rs 5 was given to each student who received a number which is a multiple of 5. How many students received Rs 7 each?

29. Fill in the blanks based on the information in the figure.

The ,location of the point P relative to the straight line segments AB and AC is obtained by the intersection of the locus of a point moving ..... and the locus of a point moving .....



30. Find **two** positive integers a and b such that $\frac{1}{a} + \frac{1}{b} = \frac{5}{12}$

Part B

1. (a) simplify : $3\frac{1}{3}$ of $\left(\frac{3}{5} - \frac{1}{2}\right)$

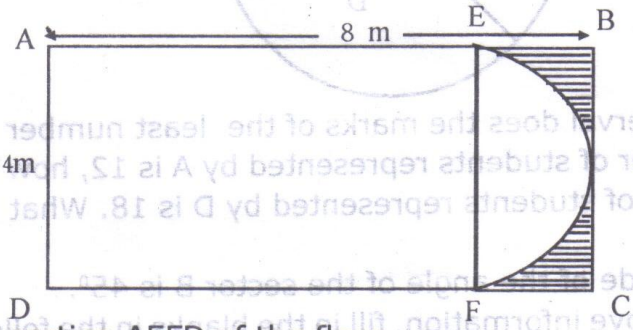
(b) A trader buys a bicycle for Rs 8000 and marks its selling price so as to receive a profit of 20% However, he gives a discount of 10% on the marked price when selling it.

(i) What is the marked price of the bicycle?
(ii) What is the price at which the bicycle is sold?
(iii) Write down the profit the trader receives, as a percentage.

2. A mixed fruit juice has been made by mixing 300ml, 200ml and 500 ml of orange juice, mandarin juice and water respectively.

(i) Give the ratio of orange juice, mandarin juice and water in the mixture in its simplest form
(ii) Find the percentage of water in this mixture.
(iii) A glass of this mixed fruit juice contains 50ml of mandarin juice. What is the quantity o orange juice in it?
(iv) If 200ml of water is added to 800 ml of this mixture, find the ratio of orange juice mandarin juice and water in the new mixture

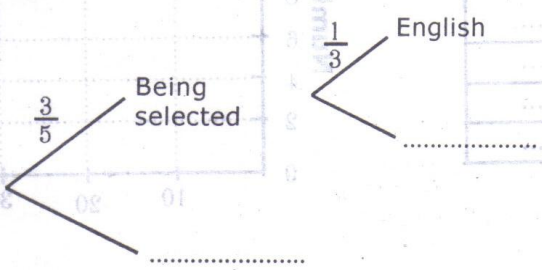
3. The floor plan of a rectangular room. ABCD of length 8m and breadth 4 m is given in the figure. A se mi-circular portion on one side of the room has been allocated for a wall cupboard.



(i) Find the area of the portion AEFD of the floor.
(ii) What is the area of the semi-circular portion that has been allocated for the wall cupboard?
(iii) It has been dicided to tile only the area AEFD with tiles of length 50cm and breadth 30cm. If the floor is to be tiled without cutting any of the tiles, to indicate how they should be placed, draw one tile with its measurements, at the corner A.
(iv) How many tiles in total are required to tile the floor as in (iii)?

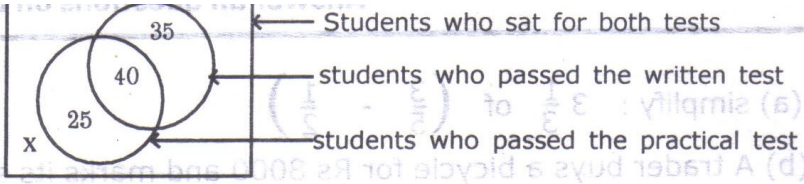
4. (a) A student who has applied to gain entrance to a certain school has a probability of $\frac{3}{5}$ of being selected. The probability of a selected student studying in the English medium is $\frac{1}{3}$

(i) A part of a tree diagram drawn to illustrate this information is given. Complete the tree diagram and write the relevant probabilities on the branches.



(ii) Find the probability of a student who has applied to gain entrance to the school, studying in a class which is **not** in the English medium.

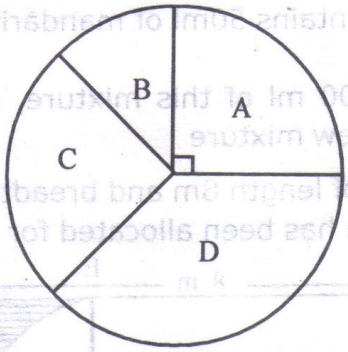
(i) What is the value of x?



(ii) Complete the following table using the above information.

Test	Number that passed	Number that failed
Written	.....	.....
Practical	.....	.....

5. The sectors A, B, C and D of the given pie chart represent the number of students who received marks in the intervals 0-10, 10-20, 20-40 and 40-50 respectively, for a test that the group of students faced. The maximum mark that a student could receive is 50.



(i) To which interval does the marks of the least number of students belong?
(ii) If the number of students represented by A is 12, how many students are there in total?
(iii) The number of students represented by D is 18. What is the magnitude of the angle of this sector?
(iv) The magnitude of the angle of the sector B is 45^0.
Using the above information, fill in the blanks in the following table and hence construct a suitable histogram on the system of axes given below to represent the number of students who received marks in each interval.

Interval	No. of students
0 - 10	.....
10 - 20	.....
20 - 40	.....
40 - 50	.....