1. Commercial arithmetic

1. Jane is a sales executive earning a salary of Ksh. 20,000 and a commission of 8% for the sales in excess of Ksh 100,000. If in January 2010 she earned a total of Ksh.48, 000 in salaries and commissions.
   a) Determine the amount of sales she made in that month (4 mks)
   b) If the total sales in the month of February and March increased by 18% and then dropped by 25% respectively. Calculate
      (i) Jane's commission in the month of February (3 mks)
      (ii) Her total earning in the month of March (3 mks)
2. Wekhomba bought a laptop in Uganda for Ush.1, 050,000. He then paid 60 US dollars as transportation charges to Kenya. On arrival in Kenya he paid duty and sales tax amounting to 55% of the cost in Uganda. He then gave it to a friend in Tanzania tax free. If the exchange rates were I US dollar = Ush 1016, 1Ksh = Ush 24.83 and Tsh 1 = Ksh 0.0714
   (a) Calculate the total expenses in Kenya shillings incurred by Wekhomba (3 mks)
   (b) Find the expenditure on transportation and taxes as a percentage of the total expenditure (2 mks)
   (c) What is the total value of the laptop in Tanzanian shillings (2 mks)
   (d) Find the overall increase in value of the laptop as percentage of the buying price (3 mks)
3. Wekesa deposited a certain amount of money in bank that paid compound interest at the rate of 20% P.A. Calculate to the nearest year the time he would have to wait for his investment to tripple. (3 mks)
4. A Kenya scholar to Japan exchanged converted Kenyan shillings to Yens. He received a total of 36,632.8 Yens. If the bank rates were as below, find how much to the nearest shilling he exchanged.

	Buying	selling	
100 Japanese Yens	Ksh 62.76	63.16	(2mks)

5. Ann bought 24 trays of eggs at sh 225 each. Each tray contains 30 eggs. 54 eggs got broken during transportation. At what price must he sell each egg in order to realize a profit of 22%. Answer to the nearest 1 shilling. (4mks)

DOWNLOAD MORE RESOURCES LIKE THIS ON ECOLEBOOKS.COM

6. A man invests Ksh 10000 in an account which pays 16% interest p.a. The interest is compounded quarterly. Find the interest earned after 1 ½ years to the nearest shilling. (4mks)

7. On Monday this currency exchange rate was

1 Euro (E) = Kshs.95.65

1 US dollar($) = Ksh.76.50

A gentle man Tourist decided to exchange half of his 2400E into Dollars.

Calculate to 2 decimal places the number of dollars he received. (3 marks)

DOWNLOAD MORE RESOURCES LIKE THIS ON ECOLEBOOKS.COM

8. A trader sold an article at sh.4800 after allowing his customer a 12% discount on the marked price of the article. In so doing he made a profit of 45% .

a) Calculate

(i) the marked price of the article. (3 marks)

(ii) the price at which the trader had bought the article (2 marks)

b) If the trader had sold the same article without giving a discount. Calculate the percentage profit he would
have made. (3 marks)

c) To clear his stock, the trader decided to sell the remaining articles at a loss of 12.5% (Calculate the price at which he sold each article. (2 marks)

9. A Kenyan businessman bought a washing machine in Europe at 500 Euros. On coming back, the Kenyan government imposed a 120% import duty and a 50% sales tax. He decided to sell the washing machine at a profit of ksh. 32,800.

Calculate

(a) Import duty (2 mks)

(b) Sales tax (2 mks)

(c) Percentage profit (3 mks)

(d) Selling price (3 mks)

Take 1 Euro € = 95 Kenya shillings

10. A farmer made a loss of 28% by selling a goat for Sh.1440. What percentage profit would he have made if he had sold the goat for Sh.2100? (3mks)

11. A drapper bought some shirts and some trousers from a wholesaler Y at Sh.200 per shirt and Sh.600 per trouser, spending a total of Sh.22, 000. If he had bought the same items from wholesaler X, he would have paid 25% more for a shirt and 15% less for a trouser and he would have spent Sh.700 more.

a) Write a simultaneous equation to represent the above information.(1mk)

b) Determine the number of each item he bought (3mks)

c) He sold all the items as a profit of 50% per shirt and 30% per trouser. Find the total profit he made if he bought from wholesaler X. (3mks)

d) Calculate to the nearest whole number, the percentage profit he made if he bought from wholesale Y (3mks)

DOWNLOAD MORE RESOURCES LIKE THIS ON ECOLEBOOKS.COM

12. Chepkurui imports rice from the United States at an initial cost of 500US Dollars per tonne. He then pays 20% of this amount as shipping costs and 10% of the same amount as custom duty. When the rice reaches Mombasa he has to pay 5% of the initial cost to transport it to Nairobi.

(a) Given that on the day of this transaction the exchange rate was 1US Dollar = Ksh 76.60, calculate the total cost of importing one tonne of rice up to Nairobi in Kenya Shillings (4mks)

(b) Chepkurui intends to make a profit of 20%. Giving your answer to the nearsest ten cents, calculate the price at which he must sell the rice per kilogram (4mks)

DOWNLOAD MORE RESOURCES LIKE THIS ON ECOLEBOOKS.COM

(c) If on the day that he completes the sale of this import he changes the total collection back to US Dollars at the rate of 1US Dollar = Ksh 78.20, calculate the actual profit that Chepkurui realized correct to three decimal places (2mks)

13. The purchase price of a TV consists of sh.4600 deposit and 8 equal monthly installments of sh.840. Given that the carrying charge is sh.2800. Find the cash price (3mks)

14. Three business partners Asha, Ogola and Jane contributed ksh.60,000, ksh.85,000 and ksh.105,000 respectively. They agreed to put 25% of the profit back into the business each year. They also agreed to put aside 40% of the remaining profit to cater for taxes and insurance. The rest of the profit would then be shared among the partners in the ratio of their contributions. At the end of the first year the business realized a gross profit of ksh.225,000.

a) Calculate the amount of money Jane received more than Asha at the end of the year (5mks)

b) Ogola further invested ksh.25,000 into the business at the beginning of the second year. Given that the gross profit at the end of the second year increased in the ratio of 10:9 and that 40% of it was shared, calculate Ogola's share of the profit at the end of the second year (5mks)

15. A man imported a vehicle at Shs. 600,000 and sold it at Sh. 1,080,0000. Find his percentage profit if he spent sh. 60,000 for clearing the vehicle from the port and a further sh. 40,000 for shipping. (3 marks)

16. A Kenyan tourist left Germany for Kenya through Switzerland. While in Switzerland he bought a watch worth 52 Deutsche marks. Find the value of the watch in:-
(a) Swiss Francs
(b) Kenya shillings (3 marks)
Use the exchange rates below
1 Swiss Franc = 1.28 Deutsche marks
1 Swiss Franc = 45.21 Kenya shillings

17. Juanita sold goods worth Ksh 95,000 and earned a total commission of Ksh 4,500. If the commission on the first Ksh. 50,000 was half of the total commission, what were the two rates of commission? (4mks)

DOWNLOAD MORE RESOURCES LIKE THIS ON ECOLEBOOKS.COM

18. Mr. Sitienei sold a house to Mr. Lagat at a profit of 10%. Mr. Lagat then sold it to Mr. Rotich at a profit of 5%. Mr. Rotich paid Ksh 110,000 more than Mr. Lagat for the house. Find how much Mr. Rotich paid for the house. (3mks)

19. A Kenya bank buys and sells foreign currencies as shown below.

	Buying (Ksh)	Selling Ksh
1 Euro	84.15	84.26
100 Japanese Yen	65.37	65.45

DOWNLOAD MORE RESOURCES LIKE THIS ON ECOLEBOOKS.COM

A Japanese traveling from France in Kenya with 5000 Euros. He converted all the 5000 Euros to Kenya shillings at the bank. While in Kenya, he spent a total of Ksh. 289850 and then converted the remaining Kenya shillings to Japanese Yens at the bank. Calculate the amount in Japanese Yen that he received. (3mks)

20. Kimani bought a car at kshs. 120,000. Its value depreciated by 8% per year for the first 2 years and by 12% per year for the subsequent years.
    (a) Determine the value of the car after 6 years. (4 mks)

    (b) After 6 years, the car was sold through an agent at 25% more than its value. If the sales price was to be taken as its value after depreciation, calculate the average monthly rate of depreciation for the six years. (6 mks)

21. Muthoni went to a shop and bought 50 packets of milk and 25 packets of salt all for Kshs.200.00. She sold the milk at a profit of 28% and the salt at a profit of 24% thereby making a net profit of Kshs.53.50. Find the cost price of a packet of milk and a packet of salt. (4 mks)

22. The cost of a camera outside Kenya is US$1000. James intends to buy one camera through an agent who deals in Japanese Yen. The agent charges him a commission of 5% on the price of the camera and further 1260 Yen as importation tax. How many Kshs. Will he need to send to the agent to obtain the camera, given that:- (3 mks)

    1 US$ = 105.00 Yen.

    1 US$ = Kshs.63.00

23. When shop keeper sells articles at sh. 240.50 each he makes a profit of 25% on the cost price. During a sale he reduces the price of each article by sh. 22.90. Calculate the percentage profit on an article sold at the sale price. (3 marks)

24. Factorise the expression $7x^2 - \frac{7}{4}(y+1)^2$ (2 marks)

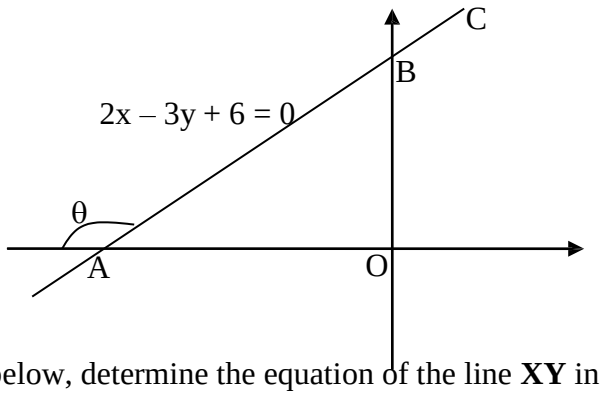
25. In certain day the bank rates for changing dollars to shillings are given below.

	Buying	selling
Dollar	78.43	79.25

An American tourist changed US dollar 1500 to shillings, but then had to return to U. S. A immediately and changed all the shillings back to dollars using the same rates. How much did he lose? (3 marks)

26. Find the angle θ in degrees from the figure below

DOWNLOAD MORE RESOURCES LIKE THIS ON ECOLEBOOKS.COM



27. In the diagram below, determine the equation of the line **XY** in the form **y = mx + c**

A (-2, -1)

X

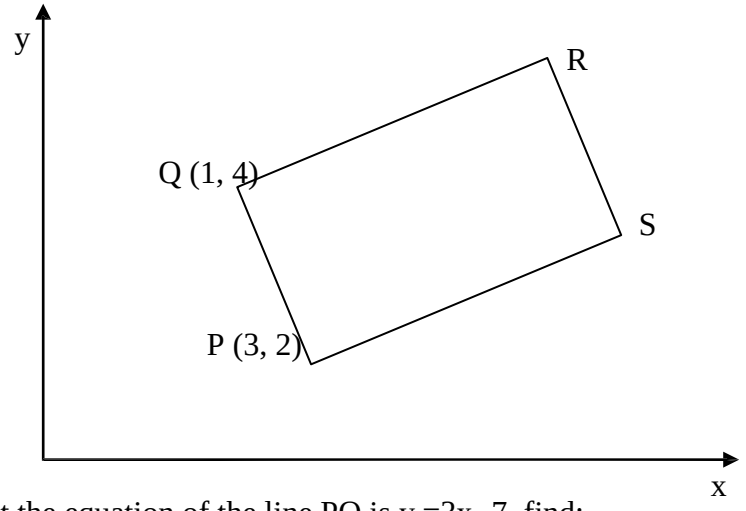
DOWNLOAD MORE RESOURCES LIKE THIS ON ECOLEBOOKS.COM

28. Find the equation of a line which passes through the point (2, 3) and is perpendicular to $y - 3x + 1 = 0$, giving your answer in the form $y = mx + c$

29. **T** is the mid-point of line **XY** where **X** is point (1,4) and **Y** is the point (-5, 10). Find the equation of a line, L_2 which is perpendicular to line **XY** and goes through point **T**

30. (a) On the grid provided below, plot points A(2,1) B(-4,3) and C(2,5)
b) Given that the gradient of CD = -1 and CD =AD locate D and complete the quadrilateral ABCD
(c) What name is given to quadrilateral ABCD?

31. In the figure below (not drawn to scale), **PQRS** is a rectangle and **P** and **Q** are the points (3, 2) and (1,4) respectively



Given that the equation of the line PQ is y =3x -7, find:
(a) The equation of line QR
(b) The coordinates of point **R**
(c) The coordinates of point **S**

32. OABC is a trapezium such that the coordinates of O, A , B and C are (0, 0), (2, -1), (4, 3) and (0, y)
(a) Find the value of y
(b) M is the mid-point of AB and N is the mid-point of OM. Find in column form
(i) the vector **AN**

DOWNLOAD MORE RESOURCES LIKE THIS ON ECOLEBOOKS.COM

(ii) the vector **NC**
(iii) Vector **AC**

(c) Hence show that A, N and C are collinear

33. Use ruler and a pair of compasses only in this question.

DOWNLOAD MORE RESOURCES LIKE THIS ON ECOLEBOOKS.COM

(a) Construct triangle ABC in which AB = 7 cm, BC = 8 cm and $\angle ABC = 60^0$.

(b) Measure (i) side AC (ii) $\angle$ ACB

(c) Construct a circle passing through the three points A, B and C. Measure the radius of the circle.

(d) Construct Δ PBC such that P is on the same side of BC as point A and $\angle$ PCB = ½ $\angle$ ACB, $\angle$ BPC = $\angle$ BAC measure $\angle$ PBC.

34. ABCD is a parallelogram with vertices A (1,1) and C(8,10). AB has the equation 4x -5y = -1 and BC has the equation 5x – 2y = 20. Determine by calculation;
(a) the co-ordinates of the point M where the diagonals meet
(b) The co-ordinates of the vertices B and D
(c) the length of AB correct to 4 significant figures

35. The table shows corresponding values of *x* and y for a certain curve;

x	1.0	1.2	1.4	1.6	1.8	2.0	2.3
y	6.5	6.2	5.2	4.3	4.0	2.6	2.4

Using 3 strips and mid-ordinate rule estimate the area between the curve, x-axis, the lines *x* =1 and *x* =2.2

DOWNLOAD MORE RESOURCES LIKE THIS ON ECOLEBOOKS.COM