Dr. Bbosa Science

UGANDA NATIONAL EXAMINATION BOARD

PRIMARY LEAVING EXAMINATION

1995 guide

MATHEMATICS

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SECTION A

1. Subtract: 3.7-2.9

$$\begin{array}{r} 3.7 \\ -2.9 \\ \hline 0.8 \end{array}$$

2. Find the square root of $^4/_9$

$$\sqrt{\frac{4}{9}} = \frac{2}{3}$$

3. Add $^3/_8 + ^1/_4$

$$\frac{3}{8} + \frac{1}{4} = \frac{3+2}{8} = \frac{5}{8}$$

4. Express 45_{ten} to binary

2	45	R
2	22	1
2	11	0
2	5	1
2	2	1
	1	0

$\therefore 45_{ten} = 101101_{two}$

5. What is the next number in the sequence *1, 3,* 7, 13, 21 .....

1,		*3,*		7,		13,		21,		**31**
	2		4		6		8		10	

There the next number in the sequence is 31

6. Muke was given a bundle of 50-shillings notes. If a bundle contains 100 notes, how much money was Muke given?

The amount given = 50 x 100 = 5000/=

7. If a = -1 and b = 3, find the value of $\frac{a^2b}{b}$

Substitution

$\frac{a^2b}{b} = \frac{-1^2 \, x \, 3}{3} = 1$

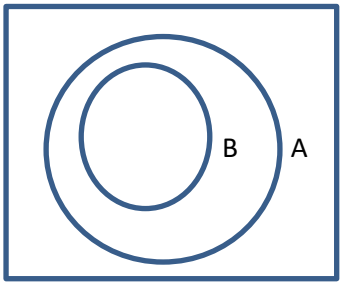
8. Express 20 metres into kilometres.

1000m = 1km

$\therefore$ 20m = $\frac{20 \, x \, 1}{1000} = 0.02km$

Hence 20m = 0.02km

9. A and B are sets. Draw a Venn diagram to represent the relation: AuB = A



10. If $\frac{1}{8} = \frac{2}{t}$, find the value of t.

By cross multiplying

1 x t = 2 x 8

t = 16

11. Find the greatest common factor of 18 and 30.

Common factor	18	30
2	9	15
3	3	5

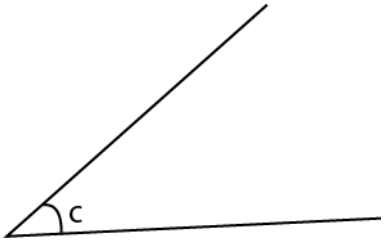
GCF = 2 x3 = 6

12. In a primary school, there are 5 female teachers and 15 male teachers. What is the percentage of male teachers in the school?

Total number of teachers = 5 + 15 = 20

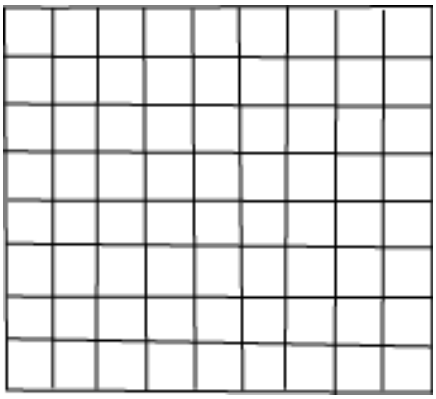
% percentages of male teachers = $\frac{15}{20}\ x100$ = 75%

13. Using a protractor, measure the angle marked c in the diagram below.



Angle c is 48^0

14. In the diagram below, each small square represents 1square unit. Find the area of the figure.



Area = L x w

= 9 x 8

= 72

15. Solve 3x =9

$\frac{3x}{3} = \frac{9}{3}$

x = 3

16. Kerto borrowed sh. 50,000 from a bank which charges a simple interest of 18 per annum. How much interest will Kerto pay after 2 years?

I = PRT

= 50000 x $\frac{18}{100}$ x 2 = 18,000 ≠

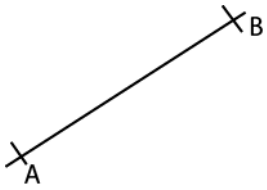
17. A basket contains 8 mangoes. 3 of the mangoes are ripe. If a mango is picked at random from the basket, what is the probability that it is not a ripe one?

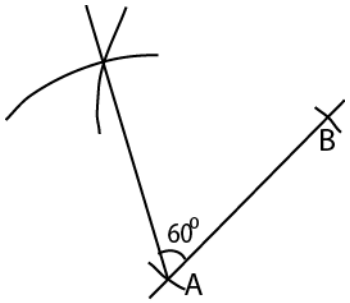
Number of unripe mangoes = 8 – 3 = 5

Probability of unripe mangoes = $\frac{number\ of\ nuripe\ mango}{total\ number\ of\ mangoes}$

= $\frac{5}{8}$

17. Using a ruler and a pair of compasses only, construct an angle of 60° at A





19. Bbosa ate half of his roasted cassava. He gave a quarter of the remainder to his friend. What fraction of Bbosa's roasted cassava was left?

Fraction consumed = $\frac{1}{2} + \frac{1}{4}\ of\ \frac{1}{2}$

= $\frac{1}{2} + \frac{1}{4}\ x\ \frac{1}{2}$

= $\frac{1}{2} + \frac{1}{8}$ = $\frac{4+1}{8} = \frac{5}{8}$

Fraction left = 1 - $\frac{5}{8}$ = $\frac{3}{8}$

20. 12 kg of flour is made up of a mixture of millet and cassava in the ratio of 1:2. What is the weight of the millet in the mixture?

Total ratio = 1+ 2 = 3

Weight of millet = $\frac{1}{3}\ of\ 12$

$= \frac{1}{3}\ x\ 12$ = 4kg

21. The temperature on Mt. Rwenzori was -3° Celsius at mid-night. By midday, the temperature rose to 10° Celsius. What was the raise in temperature?

Rise in temperature = final temperature – initial temperature

= 10 – (-3)

= 10 + 3 = 13^0C

22. The height of 9 children are; 103cm, 106cm, 103cm, 108cm, 112cm, 105cm, 103cm 118cm, and 103cm. What is the mode of the height of the children?

Mode is the value that appears most = 103cm

23. Male reduced the prices of the shirts in his shop by 10%. What was the old price of a shirt Male now sells at shs 6,300?

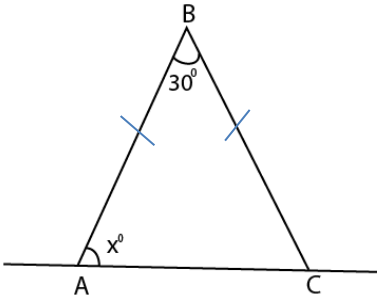
Let the old price be x

$\frac{90}{100}\ x = 6300$

By cross multiplying

x = $\frac{6300\ x\ 100}{90}$ = 7000/=

24. In the figure below, find the value of angle *x*



Angle BAC = angle ACB

$30^0 + x + x = 180^0$

$30^0 + 2x = 180^0$

$2x = 180^0 - 30^0$

$x = 75^0$

25. In a football match, team A scored 4 goals more than B. If the total goals scored by the two teams is 6, how many goals did team B score?

Let the goals scored by B be x

⇨ Goal scored by A = x + 4
⇨ x + x + 4 = 6
⇨ 2x + 4 = 6
⇨ 2x = 2
⇨ x = 1

B scored one goal

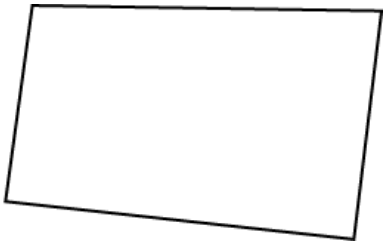
26. A car travelled from point C to D at an average speed of 80 k.p.h. If it took $^3/_4$ of an hour to cover the distance, how far is C from D?

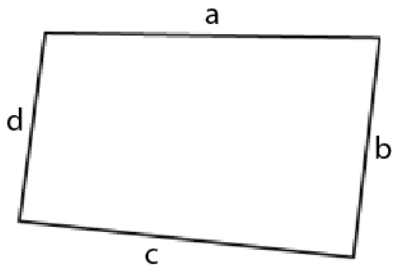
Distance = speed x time

$= 80 \times \frac{3}{4}$

= 60km

27. By measuring, find the perimeter of the figure below in centimeters.





Measure the sides a, b, c, and d cm

Perimeter = (a + b + c + d)cm

28. Simplify: *(3x- 2)* -(2x + 2).

(3x -2) – (2x +2)

= 3x -2 -2x -2

= x -4

29. The capacity of a bottle is 500ml. How many times must the bottle be filled to give 5.5 litres?

Convert 5.5l into ml = 5.5 x 1000 = 5500ml

To get number of time we divide $\frac{5500}{500}$ = 11

30. Factorize completely: *2xy-4x = 2x(y -2)*

SECTION B;

31. Kintu earns $\frac{2}{5}$ of his daily income by selling vegetables, $\frac{1}{10}$ by selling eggs and the rest by selling milk.

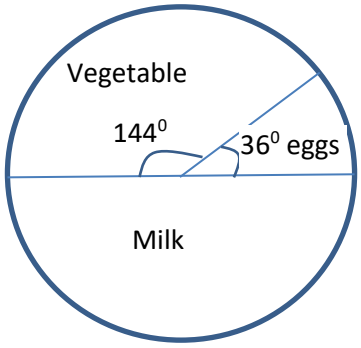
(i) Show the above information on an accurately drawn pie-chart.

Converting fraction into degrees

Vegetable = $\frac{2}{5}\ x\ 360^0 = 144^0$

Eggs = $\frac{1}{10}\ x\ 360^0 = 36^0$

Milk = 360 – (144 + 36) = 180^0



(ii) If Kintu earns shs 2,000 by selling vegetables, what is his daily income?

Let the income be x

$\frac{2}{5}x = 2{,}000$

By cross multiplication

2x = 2,000 x 5

x = shs 5000

32. (a) $2x+\frac{2}{5}y = 12$. Given that $y=\frac{1}{2}$. Find the value of *x*.

Substitution

$2x + \frac{2}{5} \; x \; \frac{1}{2} = 12$

$2x + \frac{1}{5} = 12$

$2x = 12 - \frac{1}{5}$

$x = 5\frac{9}{10}$

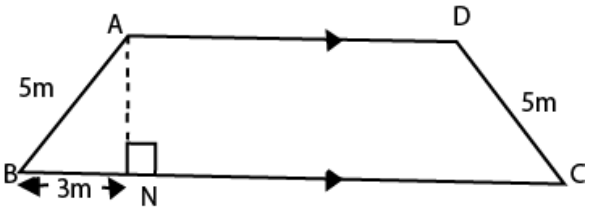
(b) If x are positive integers, find the set of values, which satisfies the inequality: $2x + 4 \leq 10$.

$2x + 4 \leq 10$

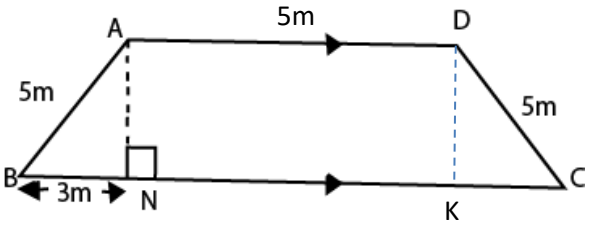
$2x \leq 6$

$x \leq 3$

33. Okodel built a house with a floor as shown in the diagram below. He covered the floor with a mat. The cost of the mat is sh. 5000 per square metre.



How much did Okodel spend to cover the whole floor?



BN = KC = 3cm

BC = 3 + 5 + 3 = 11 cm

From Pythagoras theorem

$BN^2 + AN^2 = BA^2$

$3^2 + AN^2 = 5^2$

AN = $\sqrt{(25-9)}$ = $\sqrt{16}$ = 4cm

Area = $\frac{1}{2}\ AN(AD + BC)$

= $\frac{1}{2}\ x\ 4\ (5 + 11)$ = $32m^2$

$1m^2$ cost 5000

$32m^2$ cost 32 x 5000

= shs 160000

34. A market master charges sh.200 per goat sold and sh.50 per cock sold. Byruhanga sold 3 goats in the market each at the same price. He also sold 10 cocks at sh.3,500 each. Byaruhanga took home sh.5100 more from selling cocks than from the goats.

(a) How much money did Byaruhanga take home from the sale of goats?

Money got from sale of cock	= 3500 x 10	= 35000
Market dues on the sale of cocks	= 50 x 10	= 500
Money taken home from sale cocks	= 35000-500	=34500
Money from sale of goats	= 34500 -5100	= 29400

(b) What was the price of each goat?

Market dues on the sale of goat	= 200 x 3	= 600
Total money from sale of 3 goats	= 29400 + 600	=30,000
Cost per goat	=$\frac{30000}{3}$	= shs 10,000

35. (a) Onzi planted trees 2 metres apart, in a straight line to separate his land from that of his neighbour, How many trees did he plant to cover a distance of 90 metres?

Number of trees planted = $\frac{90}{2} + 1$ = 46

NB one is added because the first is planted at zero position

(b) Onzi then built a round hut with a diameter of 3.5m .He used wooden poles to erect the wall. If he fixed the poles ½ metre apart, how many poles did Onzi use for erecting the wall? (Take π = $\frac{22}{7}$)

Circumference of the hut	= πd
	= $\frac{22}{7}\ x\ 3.5$
	= 11
Number of pole = 22 ÷ $\frac{1}{2}$	= 22

36. Cherop covers 80cm in each step he takes when walking. He takes 100 steps per minute.

(a)How long does he take to walk a distance of 3.2 km?

Changing 3.2 km into centimeters	= 3.2 x 100000
	= 320000
Number of steps to cover 320000	= $\frac{320000}{80} = 4{,}000$
Time taken to cover 4000 steps	= $\frac{4000}{100} = 40 minutes$

(b)What is Cherop's average speed in km per hour?

40 minutes = $\frac{40}{60} = \frac{2}{3} hours$

Speed = distance ÷ time

= 3.2 ÷ $\frac{2}{3}$ = 3.2 x$\frac{3}{2}$ = 4.8km/h

37. Tom has three daughters: Amanda, Brenda and Kate. Brenda is 2 years younger than Amanda. Kate's age is $\frac{1}{2}$ that of Brenda. The total age of the three girls is 27 yrs. How old is Kate?

Let Brenda's age be x

	Brenda	Amanda	Kate
Age	x	X + 2	$\frac{1}{2}x$

Total age 27

x + x + 2 + $\frac{x}{2}$ = 27

x = 10

Kate's age = $\frac{10}{2} = 5years$

38. Paula bought a sack of I00 kg of groundnuts at sh, 800 per kg. She then packed the groundnuts into 2 kg packets. She sold all the packets and made a profit of 20%. At what price did she sell each 2 kg packet?

Cost of 100kg of ground nuts = 100 x 800 =80000

Selling price with a profit of 20% = $\frac{120}{100}\ x\ 80000$ = 96000

Number of 2kg units = $\frac{100}{2} = 50$

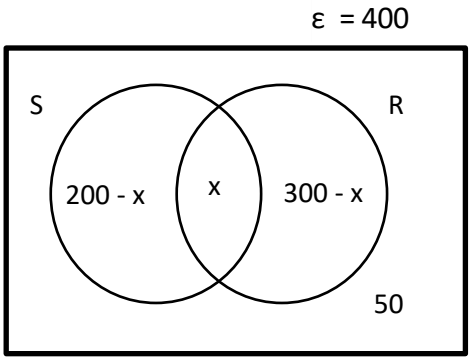
Cost per unit = $\frac{96000}{50} = 1920$

39. Of the 400 people invited to Kato's wedding, 200 attended the service, 300 attended the reception, while 50 were absent at both places. With a clearly labeled Venn diagram, find the number of people who attended both the service and the reception.

S = attended service; R = Attended reception

n(ε) = 400; n(S) = 200 n(R) = 300

let n(SUR)' = x



$200 - x + x + 300 - x + 50 = 400$

$550 - x = 400$

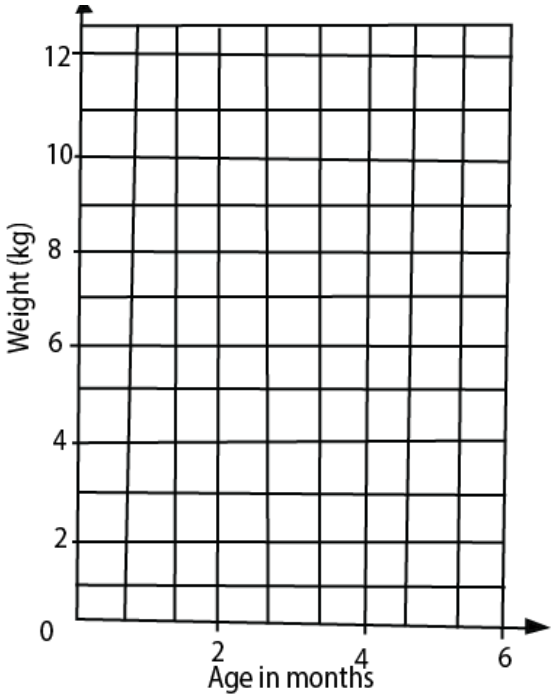
$x = 150$

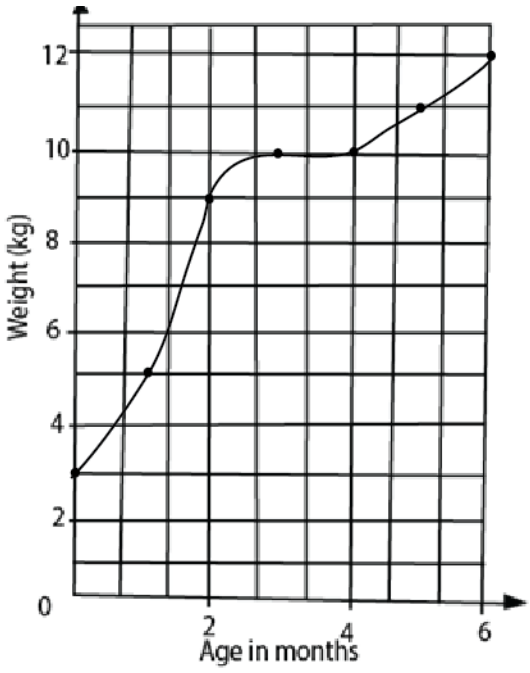
Hence, the number of people who attended both = 150

40.The table below shows the weight of a baby measured during the first six months.

Age in month	0	1	2	3	4	5	6
Weight in kilogram	3	5	9	10	10	11	12

(a) Draw a graph of the baby's weight against age.





(b) During which months did the baby's weight remain the same?

Between the 3rd and 4th month

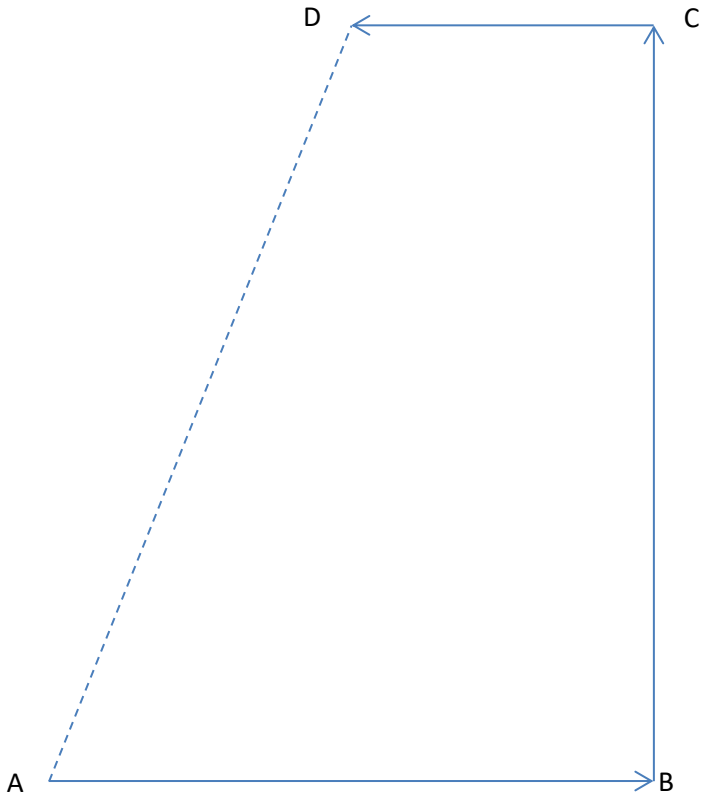
(c) During which month did the baby gain the most weight?

In the second month

41. A man moved from point A for 160 metres eastward to point B. He then turned northward and moved 200 metres to point C. Finally, he turned westward and moved 80 metres to point D.

(a)

(b) Using a scale drawing of 1 cm to represent 20 metres, draw an accurate diagram to show the man's movements.

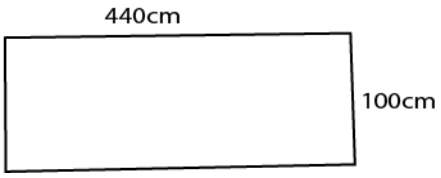


(c) Measure the distance between A and D.

Distance A to D = 18.7

(d) What is the size of angle BAD? $=68^0$

42. A welder was given a metal sheet with measurements as shown in the diagram below. He welded it into a hollow cylinder, making the height 100cm. (Take $\pi = \frac{22}{7}$)



(a) What is the surface area of the sheet of metal needed to cover the bottom of the cylinder?

Radius of the bottom = $2\pi r$ = 440

$$= 2 \times \frac{22}{7} \times r = 440$$

$$r = 70$$

Area = $2\pi r^2 = 2 \times \frac{22}{7} \times 70 \times 70 = 30{,}800$

(b) What maximum volume of water will the cylinder hold?

Volume = Area x h = 30800 x 100 = 3080000cm^3