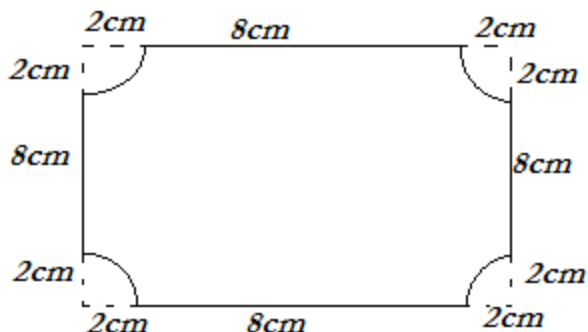# Atika school
A   F r e e   O n l i n e   A c a d e m y

HOLIDAY ASSIGNMENT ~ FORM ONE ~ END OF YEAR 2016 ~ MATHEMATICS

1. If $a:b = 3:4$ and $b:c = 5:7, find$ $a:c$

2. Find the perimeter of the figure below

3. A businessman bought a bag containing 50 mangoes for Shs 250. He sold the mangoes at Sh 10 each. 5 mangoes were bad. What was his percentage profit?

4. Korir bought the following goods from a supermarket:
   3kg of sugar @Shs 46.00
   2 loaves of bread @ Shs 22.50
   4 packets of milk @ Shs 22.50
   a) How much did she pay for the goods?
   b) How much would she have paid for the goods had she been allowed a 10% discount?

5. Four businesswomen were to go on a trip to Britain. Calculate the cost of this trip in Kenyan Shillings if each person required;

   4 lunches at £5.50 sterling each,

   3 dinners at £600 sterling each,

   4 return tickets at Kshs 4800 each

Exchange Rates		
Currency	**Buying (Kshs)**	**Selling (Kshs)**
1 Sterling Pound	114.1616	114.3043

6. Use substitution method to solve
   $2x + 3y = 600$
   $x + 2y = 350$

7. Solve the following simultaneous equation by use of elimination method
   $m + n = 8$
   $m - n = 4$

8. A man is 24 years older than his son. After 10 years he will be three times as old as his son. How old is the son?

9. Solve for x; $\dfrac{x+5}{3} = \dfrac{5}{4}$

10. The table below shows a timetable for a public service vehicle plying between two towns A and D via town B and C.

Town	Arrival time	Departure time
A	-	8:20 a.m.
B	10:40 a.m.	11:00 a.m.
C	2:30 p.m.	2:50 p.m.
D	4.00 p.m.	

    a) At what time does the vehicle leave town A?
    b) At what time does the vehicle arrive at town D?
    c) How long does it take to travel from town C to town D?
    d) How long does it take to travel from town A to town D?
    e) How long does it take to travel from town A to town B?
    f) What is the average speed for the whole journey?

11. What is the mass of water that can fill a cylindrical tank whose diameter and height are 2.8M and 3M respectively? (take density of water as 1KG/L)

12.
    a) A school water tank has a radius of 2.1M and a height of 450CM. how many litres of water does it carry when full?
    b) If the school uses 5000 litres of water a day, approximately how many days will the full tank last?

13. Muya had a $6\frac{1}{2}\,ha$ piece of land. He donated $\frac{7}{8}\,ha$ to a children's home. The rest of the land was shared equally between his son and daughter. Find the size of land that each child got.

14. A rectangular time measures 20CM by 20CM by 30CM. what is its capacity in litres

15. A school water tank has a radius of 2.1M and a height of 450CM.
    a) How many litres of water does it carry when full?
    b) If the school uses 5000 litres of water a day, approximately how many days will the full tank last?

16. 1.5 litres of water (density 1g/cm^3) is added to 5 litres of alcohol (density 0.8g/cm^3). Calculate the density of the mixture.

17. Solve the simultaneous equations by elimination method;
    a)
        $5m + 2n = 19$
        $3m - 4n = 1$
    b)
        $9x - y + 7 = 0$
        $13x - 4y + 5 = 0$
    c)
        $x + 3y = 8$
        $5x + 7y = 24$

18. A Canadian on a tour in Kenya converted 5600 Canadian Dollars to Kenyan Shillings for hotel accommodation and other miscellaneous expenses in the country. He was in Kenya for 20 days and stayed in a hotel paying Sh 3500 per day full board. He also hired a self-drive car for Sh. 7000 per day and bought curios worth Sh. 15000. He donated the balance to a children's home. Given that 1 Canadian Dollar is selling at Shs 52.1572 and buying at Shs. 52.0784, calculate in Shs
    a) His total expenditure on accommodation and car hire
    b) The amount of money he donated to children's home

19. The table below shows the amount charged for hiring a car for a given distance

Distance covered (KM)	10	20	30	40	50
Charges (Kshs.)	75	100	125	150	175

    a) Draw a graph of the charges against the distance covered
    b) From your graph, how much money is charged for a distance of;
        i. 28KM
        ii. 33KM
        iii. 42Km
    c) The distance covered if the following amounts are charged;
        i. Shs. 131
        ii. Shs. 140
        iii. Shs. 190
    d) Find the standing charge

20. Express 341.0032 to;
    a) 3 d.p
    b) 3 s.f
    c) 2 s.f

21. Find the ratio of a:c if;
    $a: x = 3: 1, x: 2 = 4: 1, 2: c = 2: 1$

22. Which of this fraction is greater?
    $3: 5 \ or \ 6: 11$

23. Simplify by use of common factors;
    a) $\dfrac{4xy - 3x + 8y^2 - 6y}{8y - 6}$

24. Find the square roots of the following numbers by the use of mathematical tables
    a) 0.009823
    b) 689,341

25. Three bells ring at intervals of 9 minutes, 15 minutes and 21 minutes. The bells will ring next together at 11:00 P.M Find the time the bells had rang together.

26. Evaluate: $\dfrac{\frac{1}{4} + \frac{1}{5} \div \frac{1}{2} \ of \ \frac{1}{3}}{\frac{1}{2} of [\frac{4}{5} - \frac{3}{4} + \frac{1}{2}]}$

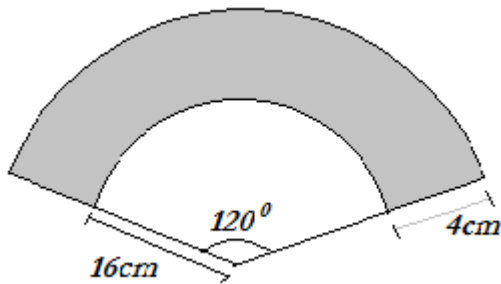27. Which of the following numbers are divisible by 2, 3 and 4;
    1080, 1842, 9216, 65432, 12636

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28. Arrange the following fractions in ascending order

$$\frac{11}{14}, \frac{7}{10}, \frac{5}{6}, \frac{11}{15}, \frac{19}{21}$$

29. Find of the shaded region in the diagram below

30. The length of a rectangle is three times its breadth. Find its area

31. In Nyahururu Munyaka Mixed School of 640 pupils, $\frac{1}{4}$ are girls, of these girls $\frac{3}{4}$ study Agriculture

    a) Calculate the number of girls who do Agriculture

    b) $\frac{3}{8}$ of the total number of students study business and of those who study Business $\frac{8}{15}$ are boys. What fractions of the girls study Business?

32. Ten men working six hours a day can do a certain job in 12 days. How long would 8 men working 12 hours a day complete the same job

33. The ratio of the amount of copper to the amount of Aluminium used to make an alloy is 3:8. If there is 39 kg of copper, how much of aluminium is required to make the alloy?

34. Three businessmen, Peter, John and Thomas share a profit of Sh. 620 000. Peter gets $3\frac{1}{2}$ times as much as John and John $1\frac{1}{2}$ times as much as Thomas. Find the amount of money each gets.

35. Mark spent half of his July salary on school fees, one-eighth on farming and two thirds of the remainder on food. Calculate his July salary if he spent Ksh. 3200 on food. Give your answer in;

    a) Numerals

    b) Words

36. Simplify;

    a) $\frac{7y^2 + y^3}{7y \div y}$

    b) $\frac{2r - 3}{4} + \frac{1 - r}{3}$

37. It takes 10 workers 12 days working 6 hours a day to harvest maize in a farm. How many days would 50 workers working 12 hours a day take to harvest the maize?

38. Show how the following problems can be solved using a number line?

    a) (+8)+(+7)

    b) (-7)+(+2)

    c) (-6)+(+4)+(-8)

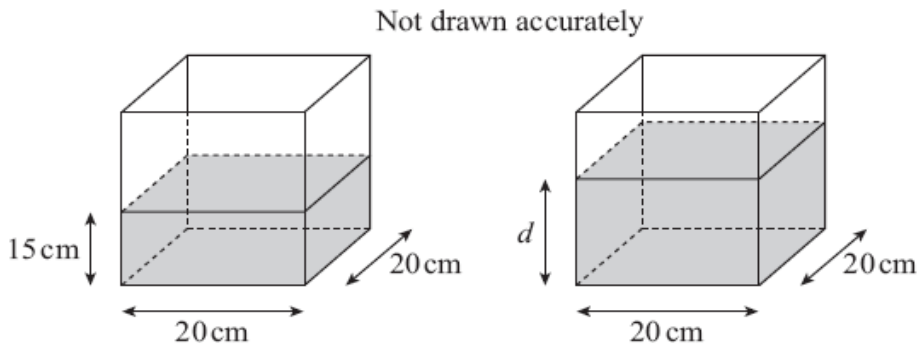   d) (+3)-(+2)

    e) (-14)-(-5)

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39. A biscuits producing company packs biscuits in packets of 18, 48 or 60 biscuits each. What is the smallest number of biscuits that can be packed in any of these quantities without any biscuit left over?

40. Transpose y in; $\frac{2y+x}{3} = \frac{7x-y}{2}$

41. Solve for the unknown;
   a) $\frac{y+3}{3} - \frac{y-3}{4} = \frac{1}{12}$
   b) $\frac{0.5}{x} - 3 = 1 + \frac{8}{x}$

42. The reading of liquid in a measuring cylinder is $45cm^3$. A solid of mass 150g is put into the container. If the density of the solid is $8.6g/cm^3$, find the new reading.

43. An arc PQ of a circle of radius 15cm subtends an angle of 160^0 at the centre of the circle. Find the length of the arc PQ. Take $\pi = 3.142$

44. A room has two windows, each measuring 1M by 1.5M and a door measuring 2M by 1M. The walls are 3M by 3M each. Find the cost of painting the inner surface of the walls at Sh.25 per M^2

45. In a certain commercial bank, customers may withdraw cash through one of the two tellers at the counter. On average, one teller takes 3 minutes while the other teller takes 5 minutes to serve a customer. If the two tellers start to serve the customers at the same time, find the shortest time it takes to serve 200 customers

46. Without using a calculator, evaluate; $\frac{-2(5+3)-9\div3+5}{-3\times-5+ -2\times4}$

47. A fruit vendor bought 1948 oranges on a Thursday and sold 750 of them on the same day. On Friday, he sold 240 more oranges than on Thursday. On Saturday he bought 560 more oranges. Later that day, he sold all the oranges he had at a price of Ksh 8 each. Calculate the amount of money the vendor obtained from the sales of Saturday.

48. Three people. Korir, Wangare and Hassan contributed money to start a business. Korir contributed a quarter of the total amount and Wangare two fifth of the remainder. Hassan's contribution was one and halftimes that of Korir. They borrowed the rest of the money from the bank which was Shs 60000 less than Hassan's contribution. Find the total amount required to start a business

49. A business woman bought 288 bananas at Sh 10 for every 12. She sold all of them at Sh. 20 for every 18. What was her percentage profit?

50. A sales woman is paid a commission of 2% on goods worth over Kshs. 106,000. She is also paid a monthly salary of Kshs. 12000. In a certain month, she sold 360 handbags at Kshs 500 each.
   a) Calculate the saleswoman's earning that month
   b) The following month, the saleswoman's monthly salary increased by 10%. Her total earnings that month were Kshs. 17, 600. Calculate;
      i. The total amount of money received from the sales of handbags that month
      ii. The number of handbags sold that month

51. Jane's weight is 556N. what is her mass in Kg. $(take\ g = 9.8N)$

52. Without using a calculator, Evaluate;
   a) $\frac{[28-(-18)]}{-2} - \frac{[15-(-2)(-6)]}{3}$

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b) $\frac{2}{7}$ of $1\frac{3}{4}\left(\frac{6}{11}\times\frac{21}{12}\right)-3\frac{1}{3}\div 2\frac{1}{2}$

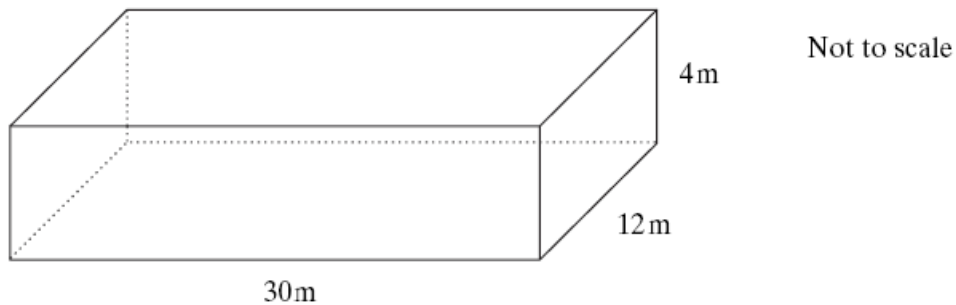c) $\dfrac{\frac{6}{7}of\frac{14}{3}\div 8\times\frac{-2}{3}}{-2\times 3+(14\div 7)\times -3}$

53. A water container is in the shape of a cuboid. Its base is 20cm by 20cm and the depth of the water in the container is 15cm. Gesare adds 1000 cm3 of water to the container. Calculate the new depth, d, of the water, in centimetres.

Not drawn accurately

54. A school hall is in the shape of a cuboid. The school hall is 30 m long, 12 m wide and 4 m tall, as shown in the diagram.
   a) Calculate the volume of the hall.
   b) Calculate the total area of the four walls of the hall.

Not to scale

55. A number is such that the sum of its digits is eleven. When the digits are reversed, the value of the new number formed is greater to the original number by forty five. Find the number.

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