** **

JETS OF ZAMBIA

MUCHINGA PROVINCE

**2016 REGIONAL JETS FAIR**

**JUNIOR MATHEMATICS QUIZ**

1. The sum of three consecutive odd numbers is 23. What are the numbers?

**ANS: 5, 7 and 11**

1. How many degrees have three right angles?

 **ANS: 2700**

1. Divide the sum of 88 and 66 by their difference.

 **ANS: 7**

1. What do we call a nine sided polygon?

 **ANS: nonagon**

1. What is the result when the cube root of 27 is added to the square root of 16.

 **ANS: 7**

1. A straight wire of length 21cm is used to form an equilateral triangle. What is the length of its sides.

 **ANS: 7**

1. A square garden has an area of 169m. How long is one side?

 **ANS: 13m**

1. A film started at 22:45 hours and ended at 01:40. How long did it take?

 **ANS: 2 hours 55 min**

1. What is the square root of 0.16?

 **ANS: 0.4**

1. Mwansa was born in 1967. 33 years later, his grandfather died at the age of 99. When was Mwansa’s grandfather born?

 **ANS: 1901**

1. What is 15% of $200?

 **ANS: $30**

1. What do we call the perimeter of a circle?

 **ANS: Circumference**

1. How many elements are in set B if set B has one subset only?

**Answer:** $∅$ **or empty set**

1. Factorize 1 – x2

 **Ans: (1 - x)(1 + x)**

1. When the number of rows in a matrix is the same as the number of columns, the matrix is called?

 **Ans: Square matrix.**

1. If 10 men paint a building in 21 days, how long would 7

 men take to paint the same building?

 **Ans: 30 days**

1. factorized completely,5m2 – 80 is

**Ans: 5(m + 4) (m – 4)**

1. P is the set of prime numbers between 0 and 12.List p.

 **Ans:**$\left\{2, 3, 5,7,11\right\}$

1. Find the value of 202 - 53

**Ans: 275**

1. Divide the sum of 88 and 66 by their difference.

 **Answer: 7**

1. A square garden has one side 6m. How long is the fence around it?

 **Answer: 24m**

1. Find the sum of the first 3 prime numbers

 **Answer: 8**

1. 15% of a number is 60. What is the number?

 **Answer: 400**

1. Divide 1 by 0.004

 **Answer: 250**

1. If x = 2 and y = -3 then 5x – 4y is

 **Answer: 22**

1. Solve the equation $\frac{1}{3}$x = 27

**Answer: 81**

1. A cuboid has a base area of 10 cm2 and a height of 5 cm. What is its volume?

**Answer: v = 50 cm3**

1. How many centimeters are there in 2 kilometers?

**Answer: 200 000**

1. In the equation v = $\sqrt{a+b}$, express b in terms of a and v.

**Answer: b = v2 – a**

1. The area of a square is 12 cm2. Find the area of a square with side twice the length.

**Answer: 48cm2**

1. Find the value of x in $2^{x}=\frac{1}{16}$.

**Answer: x = - 4**

1. The average of five numbers is 16. Another number x is added and the average of the six numbers is 14. What is x?

**Answer: 6**

1. Subtract 2900 grams from 3.7 kilograms.

**Answer: 800g or 0.8 kg**

1. If the bearing of X from Y is 1500, find the bearing of Y from X.

**Answer: 3300**

1. What is the probability of Brazil winning the game against England.

**Answer:** $\frac{1}{2}$

1. The sum of interior angles of a regular polygon is 18000. How many sides have the polygon?

**Answer: 12 sides**

1. How many subsets are found in a set of 5 elements?

**Answer: 32**

1. Which fraction is greater $- \frac{1}{2}$ or $- \frac{3}{4}$ ?

**Answer:** $\frac{4}{5}$

1. Find the value of x for which (x – 5)2 = 64.

**Answer: - 3 and 11**

1. For the line 2y + 3x = 10. What is its gradient?

**Answer: gradient =** $-\frac{3}{2}$ **or** $-1\frac{1}{2}$

1. Given that the set Q has 14 proper subsets. Find the total number of elements in set Q.

**Answer: 8**

1. Solve the equation $3^{2x-1}=3^{5}$

**Answer: x = 1**

1. A car travelling at a speed of 120km/h covers the distance from Mpika to Chinsali in 2 hours. It further travels at a speed of 100km/hour Chinsali to Isoka in 3 hours. What was its average speed on its journey?

**Answer: 108 km/h**

1. State any one axiom of congruent triangles

**Answer: SAS or AAS**

1. The mean mark of 20 pupils is 50. Two pupils join the class and their marks are 53 and 69 respectively. Find the new mean mark.

**Answer: 51**

1. Find the sum of all positive odd numbers between 40 and 100.

**Answer: 2100**

1. A ladder 10 metres long leans to a vertical wall to a height which is 8 metres from the bottom of the wall. What is the distance between the bottom of the wall and the foot of the ladder?

**Answer: 6 metres**

1. What is the sum of two additive inverses?

**Answer: 0**

1. A Juldan bus leaves Lusaka at 15 30 hours and takes 12 hours 45 minutes to reach Nakonde. At what time did it reach Nakonde?

**Answer: 03 45 hours**

1. It takes 4 people 18 hours to paint a house. If the work has to be completed in 8 hours, how many people would be needed if they were all working at the same rate?

**Answer: 9 people would be needed.**

1. If $y∝x^{2}$ and y = 8 when x = 4, find y when x = 5.

**Answer: 12**$\frac{1}{2}$

1. Find the length of a chord which is 4 cm from the Centre of a circle with radius 5cm.

**Answer: 12.49 cm**

1. Make x the subject of the formula given that $\frac{a}{x}=\frac{d}{c}$

**Answer: x =** $\frac{ac}{d}$

1. The voltage V in a circuit is given by the formula V= IR, write I in terms of V and R.

**Answer: I =**$ \frac{V}{R}$

1. A solid has a height of 15 cm and a volume of 360 cm3. A similar solid has volume 9720 cm3. Find its height.

**Answer: Height= 45 cm**

1. A box has length 15 cm, breadth 7 cm and height 8 cm. Find its surface area.

**Answer: 562 cm2**

1. A machine is tested for 100 hours continuous running how many day is this?

**Answer: 41.7 days**

1. X\*Y means multiply the first number by 3 and then add the result to half of the second number. What is 2\*(- 8).

**Answer: 2**

1. How many centimeters make 2 kilometers?

**Answer: 200 000**

1. The equation of a straight line is$ x+3y=6$. What is the y-intercept?

**Answer:** $ y-intercept=\frac{1}{3}$

1. What is the value of a if $3^{a}×3^{3}=1$

**Answer: - 3**

1. Express 0.00889 in standard form

**Answer: 8 × 10- 3**

1. The ratio of a girl’s weight to her mother is 4: 5. If the girl’s weight is 48 kg, what is the mother’s weight?

**Answer: 60 kg**

1. List the elements of all prime numbers between 10 and 20

**Answer: {11, 13, 17,19}**

1. The sum of two numbers is 15 and their difference is 1. Find the numbers.

**Answer: 8 and 7**

1. A 5m ladder leans against a window still 3.2 m above the ground. How far from the base of the wall is the foot of the ladder?

**Answer: 3.86 m**

1. Find the size of each interior angle of a nonagon.

**Answer: 1400**

1. A circular running track has a radius of 70m. find the circumference of the track.

**Answer: 660 m**

1. A set has 128 subsets, how many elements has such a set?

**Answer: 7 elements**

1. Find the value of $27^{\frac{2}{3}}$

**Answer:** $\frac{1}{9}$

1. Given that 5x =3y, find the ratio of x:y

**Answer: 3:5**

1. Evaluate $32^{-\frac{1}{5}}$

**Answer:**$\frac{1}{2}$

1. Express 0.02995 correct to 3 significant figures.

**Answer: 0.0300**

1. State whether true or false. 1 is a square number.

**One attempt Answer: true**

1. Express q in terms of H in H =$\frac{4t}{q}$

**Answer: q =**$\frac{4t}{H}$

1. What is the value of 862- 142

**Answer: 7200**

1. A gardner is paid K1500 for four hours work. What is the rate of pay per hour?

**Answer:K375/hr**

1. What is the sum of the prime numbers between 30 and 40.

**Answer: 98**

1. Express 0.18 m as a percentage of 240 cm.

**Answer: 7.5%**

1. What is half of 4 $\frac{1}{2}$?

**Answer:**$ \frac{9}{4}$ **or** $2.25$

1. Convert 145 into base 2

**Answer 10012**

1. Subtract 13 from – 2.

**Answer: - 15**

1. What special name is given to a quadrilateral made of two isosceles triangles?

**Answer: Kite**

1. Find the exact value of 0.57 ÷ 1.9.

**Answer: 0.3**

1. What is the complementary of 850?

**Answer: 5%**

1. What is the inverse of $\frac{5}{3}$? One attempt

**Answer:**$\frac{1}{3}$

1. What is the 8th term in the sequence 30, 41, 52, 63, ...

**Answer 74**

1. What are the values of x in (x – 1)2 = 9.

**Answer: x= -2 and x = 4**

1. The average of 5 numbers is 20. When a sixth number introduced the average reduces to 18. What is the number?

**Answer: 8**

1. Given that 11x = 23y state the ratio of x and y

**Answer: 23 : 11**

1. Divide 50 by half and then add ten. What do you get?

**Answer:110**

1. What name is given to the ratio between the circumference and diameter?

**Answer: Pie or π**

1. Find the value of the surd $\sqrt[2]{5}×\sqrt[2]{5}$

**Answer: 5**

1. Find the value of 992 – 1

**Answer: 9800**

1. The function $f\left(x\right)=\frac{3x+3}{x}$, find $f(2)$

**Answer: 4**

1. Express x in terms of a and y, given$ thaty=\frac{2a+2x}{x}$.

**Answer:** $x=\frac{2a}{y-2}$

1. Change 135 into base 2.

**Answer:**

1. The angles of a pentagon are 2x, 3x, 4x, 5x and 6x. Find x.

**Answer: x = 180**

1. List the subsets of {x, y}

**Answer:** $∅$**, {x}, {y}, {x, y}**

1. What is the order of rotational symmetry of a rectangle.

**Answer: 2**

1. The base of a rectangle is twice its height. The area is 18 m2. Find the base.

**Answer: 6m**

1. The difference between two complementary angles is 50°. Find the two angles

**Answer: 70° and 20°.**

1. A father is 4 times as old as his son. If the difference in their present ages is 30, how old will be the son in 3 years’ time?

**Answer: 13 years**

1. In a flow chart in computer programming what shape represents a decision box?

**Answer: Rhombus**

1. Factorize completely 2p3 – 50p

**Answer:** $2p\left(p+5\right)(p-5)$

1. In computer programming what do you call the part of a flow chart represented by a rectangle?

**Answer: Input data**

1. Each interior angle of a regular polygon is 150o. Calculate the number of sides in the polygon.

**Answer: 12**

1. A holiday is planned for a group of 20 children and food is bought to last 15 days. If the number of children were to increase to 25, how long would you expect the same amount of food to last?

**Answer: 12 days**

1. Mr. Kumalo a retired Headteacher invests K84 00 for 3 years and receives K6 300 as simple interest. At what rate per annum was the money invested?

**Answer: 2.5%**

1. Solve the equation 5x + 1 = 4(x – 2)

**Answer: -9**