



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

2. How many degrees have three right angles?

ANS: 270°

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

ANS: 7

4. What do we call a nine sided polygon?

ANS: nonagon

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

ANS: 7

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

ANS: 7

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

ANS: 13m

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

ANS: 2 hours 55 min

9. What is the square root of 0.16?

ANS: 0.4

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

ANS: 1901

11. What is 15% of \$200?

ANS: \$30

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

ANS: Circumference

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

Answer: \emptyset or empty set

14. Factorize $1 - x^2$

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

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

Ans: Square matrix.

16. If 10 men paint a building in 21 days, how long would 7 men take to paint the same building?

Ans: 30 days

17. factorized completely, $5m^2 - 80$ is

Ans: $5(m + 4)(m - 4)$

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

Ans: {2, 3, 5, 7, 11}

19. Find the value of $20^2 - 5^3$

Ans: 275

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

Answer: 7

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

Answer: 24m

22. Find the sum of the first 3 prime numbers

Answer: 8

23. 15% of a number is 60. What is the number?

Answer: 400

24. Divide 1 by 0.004

Answer: 250

25. If $x = 2$ and $y = -3$ then $5x - 4y$ is

Answer: 22

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

Answer: 81

27. A cuboid has a base area of 10 cm^2 and a height of 5 cm. What is its volume?

Answer: $v = 50 \text{ cm}^3$

28. How many centimeters are there in 2 kilometers?

Answer: 200 000

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

Answer: $b = v^2 - a$

30. The area of a square is 12 cm^2 . Find the area of a square with side twice the length.

Answer: 48 cm^2

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

Answer: $x = -4$

32. 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

33. Subtract 2900 grams from 3.7 kilograms.

Answer: 800g or 0.8 kg

34. If the bearing of X from Y is 150° , find the bearing of Y from X.

Answer: 330°

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

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

36. The sum of interior angles of a regular polygon is 1800° . How many sides have the polygon?

Answer: 12 sides

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

Answer: 32

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

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

39. Find the value of x for which $(x - 5)^2 = 64$.

Answer: -3 and 11

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

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

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

Answer: 8

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

Answer: $x = 1$

43. 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

44. State any one axiom of congruent triangles

Answer: SAS or AAS

45. 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

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

Answer: 2100

47. 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

48. What is the sum of two additive inverses?

Answer: 0

49. 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

50. 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.

51. If $y \propto x^2$ and $y = 8$ when $x = 4$, find y when $x = 5$.

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

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

Answer: 12.49 cm

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

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

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

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

55. A solid has a height of 15 cm and a volume of 360 cm^3 . A similar solid has volume 9720 cm^3 . Find its height.

Answer: Height= 45 cm

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

Answer: 562 cm^2

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

Answer: 41.7 days

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

Answer: 2

59. How many centimeters make 2 kilometers?

Answer: 200 000

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

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

61. What is the value of a if $3^a \times 3^3 = 1$

Answer: - 3

62. Express 0.00889 in standard form

Answer: 8×10^{-3}

63. 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

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

Answer: {11, 13, 17,19}

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

Answer: 8 and 7

66. 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

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

Answer: 140°

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

Answer: 660 m

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

Answer: 7 elements

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

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

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

Answer: 3:5

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

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

73. Express 0.02995 correct to 3 significant figures.

Answer: 0.0300

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

One attempt Answer: true

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

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

76. What is the value of $86^2 - 14^2$

Answer: 7200

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

Answer: K375/hr

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

Answer: 98

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

Answer: 7.5%

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

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

81. Convert 14_5 into base 2

Answer 1001_2

82. Subtract 13 from -2 .

Answer: - 15

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

Answer: Kite

84. Find the exact value of $0.57 \div 1.9$.

Answer: 0.3

85. What is the complementary of 85° ?

Answer: 5%

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

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

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

Answer 74

88. What are the values of x in $(x - 1)^2 = 9$.

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

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

Answer: 8

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

Answer: 23 : 11

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

Answer: 110

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

Answer: Pie or π

93. Find the value of the surd $\sqrt[2]{5} \times \sqrt[2]{5}$

Answer: 5

94. Find the value of $99^2 - 1$

Answer: 9800

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

Answer: 4

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

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

97. Change 13_5 into base 2.

Answer:

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

Answer: $x = 18^\circ$

99. List the subsets of $\{x, y\}$

Answer: $\emptyset, \{x\}, \{y\}, \{x, y\}$

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

Answer: 2

101. The base of a rectangle is twice its height. The area is 18 m^2 . Find the base.

Answer: 6m

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

Answer: 70° and 20° .

103. 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

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

Answer: Rhombus

105. Factorize completely $2p^3 - 50p$

Answer: $2p(p + 5)(p - 5)$

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

Answer: Input data

107. Each interior angle of a regular polygon is 150° . Calculate the number of sides in the polygon.

Answer: 12

108. 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

109. 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%

110. Solve the equation $5x + 1 = 4(x - 2)$

Answer: -9