NAME: _____

SCHOOL: _____

1. How many edges does a cube have? _____ 1

2. What is the value of the smallest prime number greater than 90 ? _____ 2

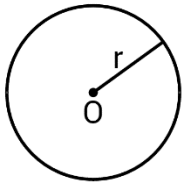
3. There are N marbles in a jar. 7 of them are red.
The probability of picking a red marble at random is $\frac{1}{9}$.
What is the value of N ? _____ 3

4. How many 4-digit numbers can be written using all of the different 4 digits of the number 2019? Note that a 4-digit number cannot start with the digit 0. _____ 4

5. Jeremy bought 31 pens at a cost of $\$0.45$ each.
How much money (in $\$$) did he pay for them?
Express your answer correct to 2 decimal places. _____($) 5

6. How many seconds are there in $\frac{1}{40}$ of an hour? _____(s) 6

7. What is the perimeter of a circle with radius $r = \frac{11}{\pi}$?

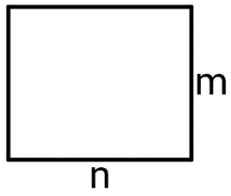


_____ 7

8. Simplify to a fraction in lowest terms: $\frac{672}{2019} + \frac{1}{2019} =$ _____ 8

9. The following is an arithmetic sequence $40,37,34,\cdots$
What is the value of the 10-th term? _____ 9

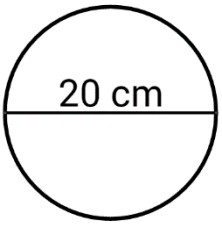
10. What is the area of a rectangle with sides $n = \frac{20}{3}$, and $m = \frac{24}{5}$?



_____ 10

11. 13 is m % of 23. What is the value of m % of 115 ? _____ 11

12. The diameter of a circular pizza tray is $20cm$.
What is the area of the tray, (in cm^2), rounded to the nearest integer?



_____(cm^2) 12

13. How many different sums of money can you make using one or more of the following 7 coins: $5¢, 5¢, 10¢, 10¢, 25¢, 25¢, 25¢$? _____ 13

14. Jonathan is making sandwiches. To make one sandwich, he needs 2 slices of bread, 1 leaf of lettuce, 3 slices of tomatoes, and 3 slices of salami. Jonathan has 15 slices of bread, 9 leaves of lettuce, 20 slices of tomatoes, and 23 slices of salami. How many complete sandwiches can he make? _____ 14

15. $y > 0$ satisfies that $y \times (y + 1) = 2019$.
Round y to the nearest integer. _____ 15

16. Abe runs at a speed of 6.5 metres per second. What is his speed in kilometres per hour? Express the answer as a decimal correct to 1 decimal place. _____($\frac{km}{h}$) 16

17. The month of May has 31 days. Tony and Michelle were both born during that month, What is the probability that both were born on an odd day (not necessarily the same day)? Provide the answer as a fraction in lowest terms. _____ 17

18. The value of 30 gold coins and 25 silver coins is $\$3335$.
The value of 25 gold coins and 30 silver coins is $\$2935$.
What is the value of one gold coin (in $\$$)? _____($\$$) 18

19. $a\#b = 4a + a \times b$. What is the value of $(1\#2)\#(1\#3)$? _____ 19

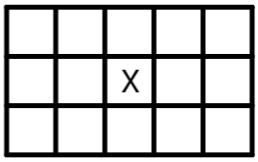
20. The administration office of a very large school needs to assign classrooms for math students. If 31 students are assigned to each classroom, 19 students will have no classroom assigned for them. If 34 students are assigned to each classroom, the school will be able to accommodate everyone plus 26 extra students. How many math classrooms are there in the school? _____ 20

21. How many different 5-digit numbers can be created by arranging the following 5 numbers: $3,3,4,5,9$? _____ 21

22. Jason has a big $6cm \times 6cm \times 6cm$ cube. He covers the outside of the big cube with paint, and then cut it into $1cm \times 1cm \times 1cm$ little cubes. How many of the little cubes have paint on either 0, 1, or 2 faces? _____ 22

23. A litre is $1000cm^3$. $\frac{3}{4}$ of a litre of water (density of $1\frac{g}{cm^3}$) is mixed with $\frac{5}{8}$ of a litre of grain (density of $\frac{3}{8}\frac{g}{cm^3}$) to make $\frac{9}{8}$ litres of a mixture. What is the density of the mixture (in $\frac{g}{cm^3}$) ?
Express your answer as a fraction in lowest terms. _____($\frac{g}{cm^3}$) 23

24. The figure below consists of 15 squares with side 1. How many rectangles of all sizes do not contain the square with X ? Note that a square is also a rectangle.



_____ 24

25. What is the smallest positive integer that has exactly 21 factors?
Note that the numbers 1 and N are always factors of N. _____ 25

26. A bag has 6 red balls, 3 blue balls, and 2 green balls. Alan removes 8 balls from the bag. What is the probability that the remaining 3 balls are each of a different colour? Express the answer as a fraction in lowest terms. _____ 26