NAME: _____

SCHOOL: _____

1. Convert 1.20 to a fraction in lowest terms.

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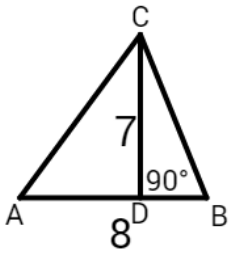
2. What is the area of a triangle with side $AB = 8$ and height $CD = 7$?



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3. What is the maximum number of primes, (not necessarily different), that add up to 11?

_____ 3

4. Tanya bought 10 stamps, each cost her $1.30, and she had to add 5% GST to the cost of the stamps. What was her total cost (in dollars) correct to 2 decimal places?

_____($) 4

5. The combined age of Haidi and her parents is 81. Her father is three years older than her mother, and Haidi's age is 12. How old is her mother?

_____ 5

6. Calculate: $(2018 - 18) \times (2020 - 2018) =$

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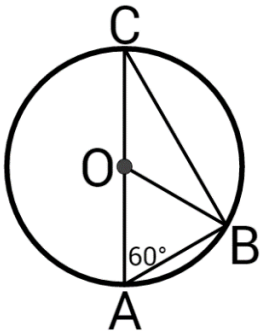
7. Jennifer typed on her computer an essay of 1000 words or less. She wrote 286 words on Page 1, 274 on Page 2, 269 on Page 3, and the balance on Page 4. What was the maximum possible number of words that she wrote on Page 4?

_____ 7

8. The school cafeteria sold 650 student lunches during the School Sports Day. 13 of the school lunches were paid by vouchers from the prize fund. What percentage of the lunches was not paid by the prize fund?

_____(%) 8

9. $\triangle ABC$ is inscribed in a circle with centre O. AC is a diameter and $\measuredangle OAB = 60°$. What is the value (in degrees) of $\measuredangle BOC$?



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10. An outdoor theatre has 50 rows of 25 seats each. Each seat has a ticket price of $8. How much money, (in dollars), was collected for the clown show if 20% of the seats were unfilled? _____($) 10

11. Think of a number N. Triple the value of N. Add 20 to the result. Subtract N. Subtract 13. Double the result. Subtract 4N. What number is left? _____ 11

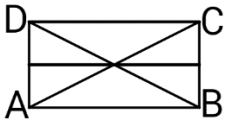
12. There are N coloured chips in a bag. $\frac{1}{10}$ of them are red, $\frac{1}{4}$ are blue, $\frac{3}{8}$ are green, and the remaining 44 chips are yellow. What is the value of N? _____ 12

13. An airline sells a ticket to fly from Vancouver to Chicago for N dollars. An online travel agency sells the same ticket with a 6% discount on the ticket price, and it, then, adds $33 service charge. It turns out that if you buy the ticket from the airline or from the travel agency, you end up paying the same price. What is the value of N? _____($) 13

14. Calculate: $\frac{1110}{2222} + \frac{2223}{4444} =$
Express your answer as a fraction in lowest term. _____ 14

15. The letters a , b , and c each represent single digit numbers.
The following is a correct subtraction: $7359 - 5a6b = 1c94$.
What is the value of $a + b + c$? _____ 15

16. $ABCD$ is a rectangle ($AB > BC$) with its diagonals and the line connecting the centres of sides BC and AD drawn.
How many right triangles are there in the figure below?



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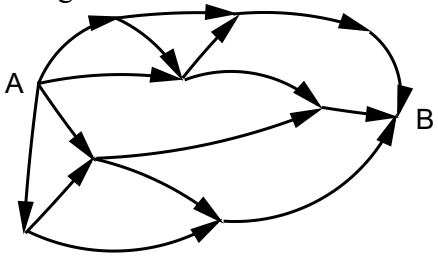
17. In how many ways can Lorna get from point A to point B if she must walk along the curved roads and in the directions marked by the arrows?



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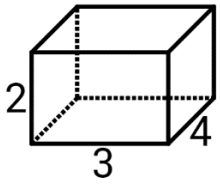
18. You glue together (full face to full face) 3 identical blocks, each with sides 2, 3, and 4, to make a larger object so that the larger object has the largest possible surface area. What is the surface area of this object?



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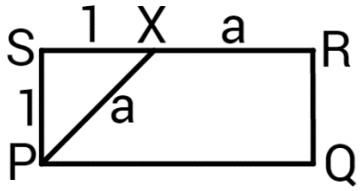
19. $270 = pqr^3$ where p, q, and r are primes. What is the value of $p^2q^2r^4$? _____ 19

20. Two runners run around a circle, starting at the same location, (S), at the same time, each of them running at a constant speed, and in the same direction. The speed of runner A is 30% higher than the speed of runner B. How many full circles does runner A run until she passes runner B at the starting point S for the first time? _____ 20

21. The seven letters from the word $ELMACON$ are put in a bag. Three of these letters are then drawn from the bag and placed on the desk. What is the probability that none of these three letters comes after G in the alphabet? Express your answer as a fraction in lowest terms. _____ 21

22. What is the largest number of consecutive positive even numbers such that their sum is smaller than 2018? _____ 22

23. In the rectangle below $SP = SX = 1$, and $XP = XR = a$. What is the perimeter of $PQRX$? Express your answer as $i + j\sqrt{k}$ where i is an integer, and j and k are primes.



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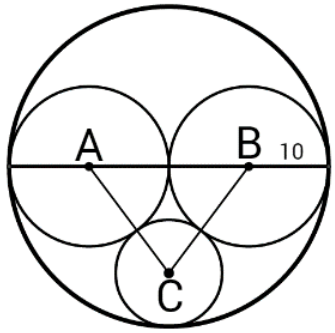
24. How many positive whole numbers less than 2018 are divisible by either 3, or 7, or both? _____ 24

25. How many positive integers smaller than 2018 have the property that the sum of their digits is 3? Here are some examples: 12, 300, 1011. _____ 25

26. Two circles with centres A and B, with radius 10 each, are tangent to each other, and are inscribed in a larger circle with radius 20 as shown. A smaller circle with centre C is drawn such that it is outside the two circles, still inside the larger circle, and is tangent to all three circles. What is the radius of the smaller circle? Express your answer as a fraction in lowest terms.



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