

Put ID Sticker Here

# SPRINT ROUND -- GRADE

# 6

**NO Peeking: Wait for instructions to start!**

The region below is for the use of the markers

Max 9	Max 9	Max 8	Max 26	
Pr. 1-9	Pr. 10-18	Pr. 19-26	Stage Tot	Marker

1. Calculate:  $\frac{3}{2} \times \frac{3}{3} \times \frac{3}{4} = ?$

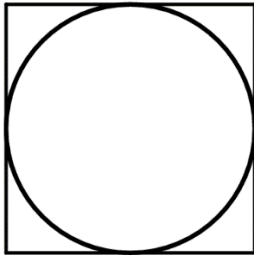
Express the answer as a fraction in lowest terms. \_\_\_\_\_ 1

2. What is the average value of the following 4 numbers: {10,11,13,14}? \_\_\_\_\_ 2

3. There are  $N$  beads in a box of which 2 are white and the rest are black. You pick one bead from the box at random, and the probability that this bead is white is  $\frac{1}{11}$ . What is the value of  $N$ ? \_\_\_\_\_ 3

4. How many seconds are there in 1 hour and 4 minutes? \_\_\_\_\_(s) 4

5. A circle is inscribed inside a square. The circumference of the circle is  $5\pi$ . What is the area of the square?



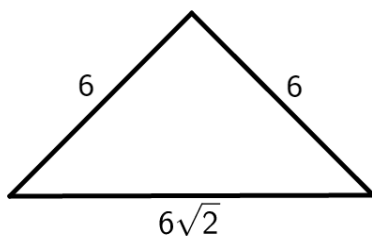
\_\_\_\_\_ 5

6. The cost of 8 chairs and 2 tables is \$414. The cost of one table is \$99. What is the cost of one chair (in dollars)? \_\_\_\_\_(\$ 6

7. Round 11% of 2020 to the nearest whole number. \_\_\_\_\_ 7

8. What is the smallest 3-digit positive whole number where each digit is a prime, and the sum of the digits (“Digit Sum”) is also prime? Note that 1 is not a prime number. \_\_\_\_\_ 8

9. What is the area of the triangle below which has sides 6, 6, and  $6\sqrt{2}$ ?

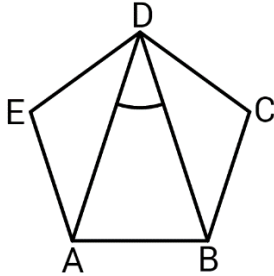


\_\_\_\_\_ 9

10. How many grams are there in 0.0023 tonnes?  
 Note that a tonne is 1000 kilograms. \_\_\_\_\_(g) 10

11. What is the value of the unit's digit (rightmost digit) of  $9^{2020}$ ? \_\_\_\_\_ 11

12.  $ABCDE$  is a regular pentagon. What is the value of  $\sphericalangle ADB$  (in degrees)?

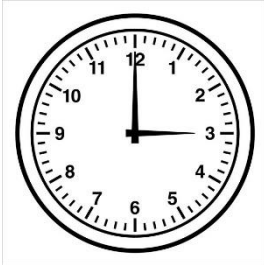


\_\_\_\_\_ (°) 12

13. What is the value of the 2020-th term of the following arithmetic sequence:  
 $-2020, -2018, -2016, \dots$ ? \_\_\_\_\_ 13

14. The decimal expansion of the fraction  $x$  is the repeating decimal  $0.2727 \dots$ .  
 Express  $x$  as a fraction in lowest terms. \_\_\_\_\_ 14

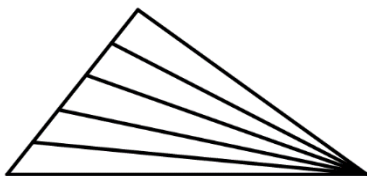
15. How many times between the hours of 5 AM and 9 PM of the same day does at least one of the hands of an analog clock point exactly towards the number 6?  
 Note that the figure below displays a time when one hand points exactly towards the number 12 and the other hand points exactly towards the number 3.



\_\_\_\_\_ 15

16. An exam has 25 questions, of which 10 are worth one mark each and the other 15 are worth two marks each. You get full marks for any of the questions if your answer is correct (no partial marks).  
 How many different total scores can you get? \_\_\_\_\_ 16

17. How many triangles of all sizes are there in the figure below?



\_\_\_\_\_ 17

18. What is the largest prime factor of 396? \_\_\_\_\_ 18

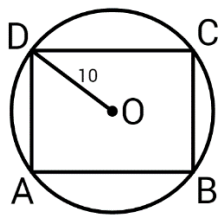
19. What is the smallest prime that, when divided by either 11 or 17, has a remainder of 10? \_\_\_\_\_ 19

20. Calculate:  $11111^2 = ?$  \_\_\_\_\_ 20

21. How many positive whole numbers smaller than 2020 have a digit sum of 3? \_\_\_\_\_ 21

22. The BC team of the Canadian Championship Games consists of 11 members including Yen and Zick. At the opening ceremony, four members of the team were selected at random: two to carry the flag, and another two to carry a banner. What is the probability that Yen and Zick either both carry the flag, or both carry the banner? Express the answer as a fraction in lowest terms. \_\_\_\_\_ 22

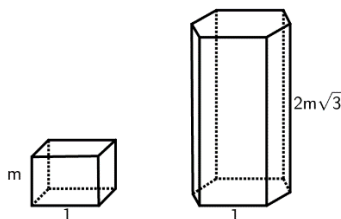
23. The perimeter of rectangle  $ABCD$  is 56 and it is inscribed in a circle with centre at  $O$  and radius 10. What is the area of the rectangle?



\_\_\_\_\_ 23

24. You throw 3 ordinary 6-sided dice.  $\frac{5}{108}$  is the probability that the sum of the 3 dice is  $M$ . What is the smallest possible value of  $M$ ? \_\_\_\_\_ 24

25. A prism with square base of side 1 and height  $m$  has Volume  $V$ .  
A prism with regular hexagon base of side 1 and height  $2m\sqrt{3}$  has volume  $W$ . What is the value of  $\frac{W}{V}$ ?



\_\_\_\_\_ 25

26. Aria has 15 cards and each card has a single number marked on it. 3 cards have number 1 marked on them, 3 have number 2, 3 have number 3, 3 have number 4, and 3 have number 5. Aria picks (at random) 4 of the 15 cards. What is the probability that the sum of the cards she picked is 7? Express the answer as a fraction in lowest terms. \_\_\_\_\_ 26