

NAME: _____

SCHOOL: _____

1. Jim has **2** \$1.00 (loonie) coins in his pocket. He also has 50% more \$0.25 (quarter) coins than loonie coins in his pocket, and he has some \$0.10 (dime) coins, so that the total number of coins in his pocket is **30**. What is the value, (in dollars correct to 2 decimal places), of the coins in his pocket?

_____ (\$)

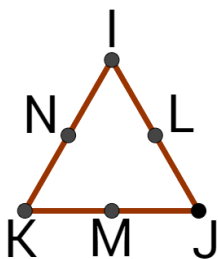
2. What is the ratio of the area of a square pizza with side 3π to the area of a round pizza with radius $2\sqrt{\pi}$? Express your answer as a fraction in lowest terms.

_____ 2

3. Find the sum of all 4-digit numbers that can be formed using the digits **2, 0, 1, and 8**.
Note: (a) **0128** is not a 4-digit number, and (b) the number **2201** cannot be formed because it does not use all the four different digits.

_____ 3

4. $I, J, K, L, M,$ and N are different positive whole numbers from **1** to **6** where $I, J,$ and K are written on the 3 corners of a triangle, and $L, M,$ and N are written on the middle of each of the sides, as shown.
It is given that $I + L + J = I + N + K = J + M + K = x$, (i.e. the sum along each side is the same for all three sides).
There are different values of x that can satisfy these conditions.
What is the sum of all these different values of x ?



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5. Consider the following 4 fractions: $\frac{5}{11}$, $\frac{19}{40}$, $\frac{41}{83}$, and $\frac{47}{100}$.

What is the sum of the numerator and the denominator of the largest of these fractions?

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6. What is the ratio of the area of the shaded region to the area of the 5×5 square?
Express your answer as a fraction in lowest terms.



_____ 6

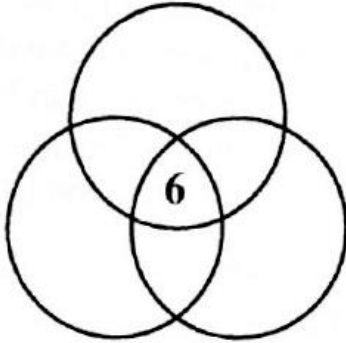
7. Abe has at least one of each of the Canadian coins:
\$2.00, \$1.00, \$0.25, \$0.10, \$0.05,
but no more than two of each coin.
He cannot make \$3.50 with any
combination of the coins he has.
What is the maximum amount of money,
(in dollars correct to 2 decimal places), that he could have?

_____ (\$) 7

8. You have a pile of 4 cards with the numbers 1, 2, 3, and 4 written on them.
You select a card at random and write down on paper the number
that is written on it, and return the card to the pile.
You repeat this process twice more.
What is the probability that the sum of the 3 numbers
that you wrote on the paper is prime?
Express your answer as a fraction in lowest terms.

_____ 8

9. There are 6 marbles inside the specified central region.
 There are extra marbles split evenly between all of the other 6 regions, so that the total number of marbles inside each of the circles is 51.
 How many of the marbles are located inside exactly 2 circles?



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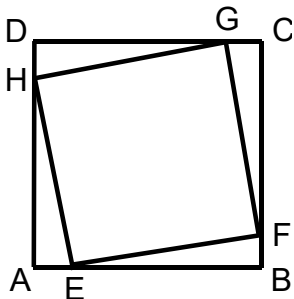
10. $a_1 = 1, a_2 = 2 + 3, a_3 = 3 + 4 + 5, a_4 = 4 + 5 + 6 + 7, \dots$
 What is the value of a_8 ?

_____ 10

11. The numbers $A, B, C,$ and D satisfy the following:
 $A + B + C = 45, A + B + D = 48,$
 $A + C + D = 50,$ and $B + C + D = 55.$
 What is the value of $A + B + C + D$?

_____ 11

12. $ABCD$ is a square with side 1.
 $E, F, G,$ and H are on $AB, BC, CD,$ and $DA,$
 as shown, and $EFGH$ is a square.
 Let $AE = x$ and $EB = y.$ The area of $EFGH$ is $\frac{81}{121}.$
 What is the value of $(x - y)^2$?
 Express your answer as a fraction in lowest terms.



_____ 12