◎Ten points each. Total 100 points.
每題 10 分，共 100 分。

1) Compute $\frac{1}{12}+\frac{1}{20}+\frac{19}{24}+\frac{1}{30}+\frac{1}{42}+\frac{1}{56}$.

2) x and y are positive integers, and $\frac{2023+x}{2022+y}=\frac{2023}{2024}$. Find the smallest value of $x+y$.

x、y 都是正整數，$\frac{2023+x}{2022+y}=\frac{2023}{2024}$，則 $x+y$ 的最小值是多少？

3) *Alex* calculates the sum of the interior angles of a polygon. If he misses an interior angle, and the sum of the angles is 2023°, find the interior angle that he misses in degree.

Alex 在計算多邊形的內角和時，不小心漏算了一個內角，算出來的總度數是 2023°，則他漏算的那個內角度數是多少度？

4) Numbers are written in a certain pattern in the left figure. Given that the three right figures are captured from the left figure, find $a+b+c$.

數有規律地排列在左邊的圖，右邊的三個圖是從左邊截取的一部分，則 $a+b+c=$？

1	2	3	4	•••
2	4	6	8	•••
3	6	9	12	•••
4	8	12	16	•••
•••	•••	•••	•••	•••

8
10
a

20	25
b	30

21		c
	32	40

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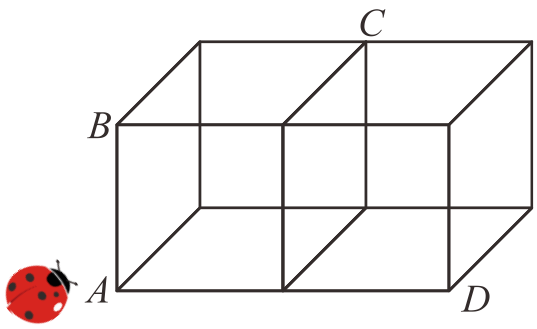
5) Use 20 identical wooden sticks to build a flower stand. A beetle starts off at point A, passes point B, passes point C, and arrives at point D. If the beetle can only pass each wooden stick once, how many distinct shortest routes are there?

如圖，用 20 根相同的木頭搭起一個花架，一隻甲蟲從 A 點出發，經過 B 點，再經過 C 點，最後抵達 D 點，若每根木頭只能經過一次，則不同的最短路徑有多少條？



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6) Convert the result of the expression to a decimal. Find the 2023rd digit after the decimal point.

將下列算式的結果化為小數，在小數點後第 2023 位的數字是多少？

$$1+\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}+\frac{1}{6}+\frac{1}{7}+\frac{1}{8}+\frac{1}{9}+\frac{1}{10}$$

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7) A natural number can be represented as the sum of 3 successive natural numbers, or the sum of 5, 7, or 8 successive natural numbers. Find the smallest value of this natural number.

一個自然數可以表示成 3 個連續自然數的和，也可以表示成 5 個、7 個或 8 個連續自然數的和，則這個自然數最小是多少？

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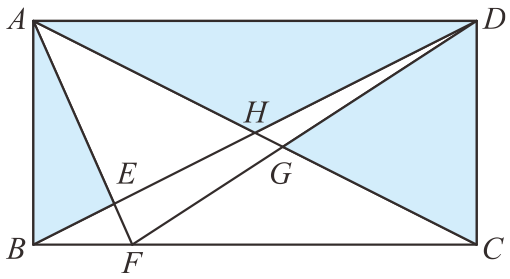
8) The sum of the areas of the shaded regions of rectangle $ABCD$ is 270 cm^2. If $\overline{AB} = 15$ cm, $\overline{AD} = 32$ cm, find the area of quadrilateral $EFGH$ in cm^2.

如圖，長方形 $ABCD$ 內塗色部分的面積之和為 270 cm^2，$\overline{AB} = 15$ cm，$\overline{AD} = 32$ cm，則四邊形 $EFGH$ 的面積是多少 cm^2？



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9) Given a 3-digit number ABC. Add a 6 to its left, and 6ABC is a multiple of 6. Add a 7 to its right, and ABC7 is a multiple of 7. Add an 8 to its left, and 8ABC is a multiple of 8. Add a 9 to its right, and ABC9 is a multiple of 9. Find the value of ABC.

有一個三位數 ABC，在它的左邊加上 6，則 6ABC 會是 6 的倍數；在它的右邊加上 7，則 ABC7 會是 7 的倍數；在它的左邊加上 8，則 8ABC 會是 8 的倍數；在它的右邊加上 9，則 ABC9 會是 9 的倍數，請問 ABC 的值是多少？

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10) Fill 1～25 in a 5×5 grid without repetition to make the sum of the numbers in each row, column, and diagonal in the 5×5 grid and the colored 3×3 grid the same. Find the multi-digit number *ABCD*. (Ex: *A*＝15, *B*＝3, *C*＝22, *D*＝1, *ABCD*→15321)

如圖，將 1～25 不重複的填在 5×5 的方格內，使得整個 5×5 方格及塗色部分 3×3 方格內，每一直行、每一橫列及對角線上的數之和都相等，則多位數 *ABCD* 應記為多少？
(Ex：*A*＝15、*B*＝3、*C*＝22、*D*＝1、*ABCD*→15321)

23	2		20	*D*
		9		4
A			15	
	B		10	18
		C		