1. If $\left(9-\dfrac{8}{8+\dfrac{2}{1-\dfrac{6}{5}}}\right)^2=\overline{abc}$, find $a+b+c$.

2. Let the quotient when 161,595 is divided by 513 be 315. What is the quotient when 0.161595 is divided by 0.0513?

3. Evaluate $\dfrac{1\frac{3}{4}-3\frac{1}{2}+2\frac{3}{8}}{0.087+0.2891\div 0.7}$.

4. Given that $a\oplus b=a\times 3b-2a\div\dfrac{6}{b}+2a$. What is the value of $3\oplus 5$?

5. Evaluate $\dfrac{(2023^8-2022^8)}{5\left(2023^4+2022^4\right)\left(2023^2+2022^2\right)}$.

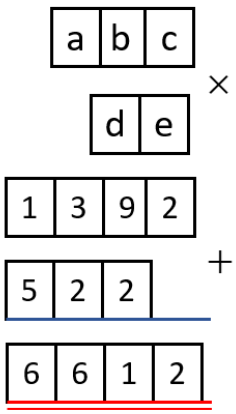
6. Let k be a positive integer less than 40 and $\gcd(k,15)=1$. How many possible numbers k are there?

7. How many positive integers n are there such that $n^2 + 1849$ is a perfect square number?

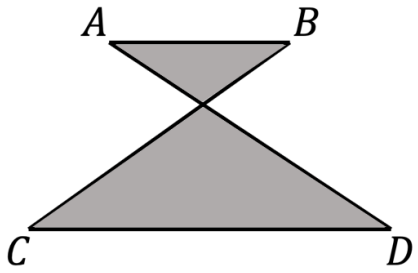
8. If $a_1 + a_2 = 2, a_2 + a_3 = 4, a_3 + a_4 = 6, \ldots, a_{65} + a_{66} = 130$ and $a_{66} + a_1 = 132$, then what is the sum of $a_1, a_2, a_3, \ldots, a_{66}$ is divided by 11?

9. Alice adds up all even numbers between 1 and 999. Then, from the total, she subtracts all odd numbers between 1 and 998. What is the result?

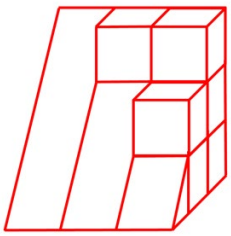
10. Find the missing 3-digit number $\overline{abc}$ in the following multiplication sentence.



11. From the Figure below, $\overline{AB} \,//\, \overline{CD}$ and the distance between them is 25 cm. The lengths of $\overline{AB}$ and $\overline{CD}$ are 3 cm and 7 cm, respectively. Find the shaded area.



12. The big cube is constructed of 27-unit cubes and then it is reshaped as shown below. Find a volume of big cube that is removed.

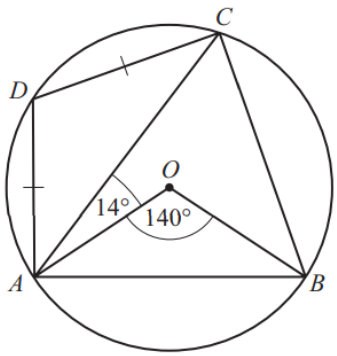


13. Let $ABCD$ be a quadrilateral whose ratio of adjacent sides is as follows: $AB : BC = 3 : 2, BC : CD = 5 : 3$ and $CD : DA = 2 : 3$, respectively. If a perimeter of $ABCD$ is 120 cm, then find the value of $AB + DA$.

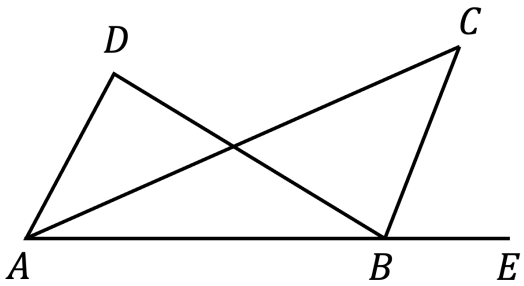
14. The number of diagonals in a regular polygon is 20. How many vertices of this polygon are there?

15. Let ABC be a triangle whose area is 25 unit^2. Points M and N lie on a side AB and AC, respectively. Areas of triangles AMC and BNC are 10 unit^2 and 12.5 unit^2, respectively. Find the area of a triangle AMN.

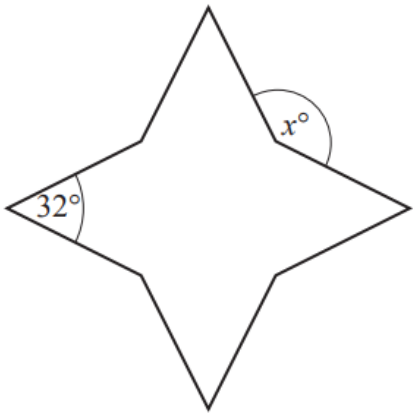
16. Points A, B, C and D lie on the circle with centre O, see Figure below. If angle $AOB = 140^\circ$, angle $OAC = 14^\circ$ and $AD = DC$, then find the angle ACD.



17. From the figure below, $D\hat{A}C = C\hat{A}B, D\hat{B}C = E\hat{B}C$ and $A\hat{C}B = 35^\circ$. Find the angle ADB.



18. Figure below shows an octagon whose all sides are the same length. Four interior angles are 32° each and the other four interior angles are equal. Find the value of x.



19. Jimmy has 9 cards marked with the numbers 1 to 9 in the box. Suppose that the probability of picking two random cards whose multiplication is a perfect square is k. What is the value of $54k$?

20. Suppose there are lots of 1 baht coins, 2 baths coins, 3 baths coins, and 10 baths coins in a cash register. If a cashier staff would like to withdraw 10 baths, how many ways to withdraw money?

21. Let x be real number such that $x^{x^3} = 36$. What is the value of x^9?

22. Given that $\dfrac{218}{27} = a + \dfrac{1}{b + \dfrac{5}{c}}$, where c > 5. Find the value of $a + bc$.

23. Let ΔABC be a triangle with right angle at C. Points D, E and F lie on the sides AC, AB and BC, respectively. Suppose that $AD = AE$ and $BE = BF$. Find angle DEF.

24. Define $\lceil n \rceil$ is the smallest integer which is greater or equal to n.
Tom has a wire of length x cm. He cut it into 2 pieces. The first one is then formed into a square. Another is then formed into an equilateral triangle. If the area of a square and an equilateral triangle are equal and the sum of areas is 968 cm^2, then find $\lceil x \rceil$.
(Given $\sqrt[4]{3} = 1.320, \sqrt{3} = 1.732$.)

25. From the sequence of diagrams given below, how many triangles are there in Diagram 4?

Diagram 1 Diagram 2 Diagram 3



ANSWERS M.1

No.	Answer	No.	Answer
1	16.00	14	8.00
2	3.15	15	5.00
3	1.25	16	38.00
4	46.00	17	70.00
5	809.00	18	122.00
6	21.00	19	6.00
7	1.00	20	15.00
8	201.00	21	216.00
9	500.00	22	138.00
10	174.00	23	45.00
11	72.50	24	188.00
12	12.00	25	20.00
13	72.00		