1. Given that $\left(2^0-1+5^2\right)^{-1}\times 5=5^{n-7}$. What is the value of $n^2 + 3n + 2$?

2. Lisa wants to separate 90 goldfishs into 4 pools. The number of goldfishs in the pool 2 is 1 more than the number of goldfishs in the pool 1. The number of goldfishs in the pool 3 is 2 more than the number of goldfishs in the pool 2. The number of goldfishs in the pool 4 is 3 more than the number of goldfishs in the pool 3. Find the number of goldfishs in the pool 4.

3. If $\frac{\sqrt{8}+\sqrt{6}}{\sqrt{8}-\sqrt{6}}=a+b\sqrt{c}$, where a,b are integers and c is a prime number, then what is the value of $a+b+c$?

4. Given $x+2y=14$ and $3x+y=2$. Let (a,b) be an intersection point of these equations. Find the value of |a|+|b|.

5. 2 years ago, Jong is 3 times as old as Karren. 4 years ago, Jong is 4 times as old as Karren. How many years from now will Jong be twice as old as Karren?

6. Define $a\Delta b = a + \frac{1}{b}$. If $\left((1\Delta 2)\Delta 3\right) - \left(1\Delta\left(2\Delta 3\right)\right) = \frac{x}{y}$, where x and y are relative prime numbers, then find the value of $|xy|$.

7. Let $A, B,$ and C be real numbers. If $A + \frac{1}{B} = 6, B + \frac{1}{C} = -5,$ and $C + \frac{1}{A} = -4,$ then find the value of $ABC + \frac{1}{ABC}$.

8. Find the remainder when 5^{2024} is divided by 9.

9. Let $\frac{x}{y}$ be a fraction which satisfies following conditions:

   x and y are relative prime numbers. If the numerator and the denominator of the same fraction are increased by 1, then the result is the original fraction that is increased by 10%. Find the sum of all possible value of x and y.

10. Let P be a prime number which can be written the sum of two square different numbers. If P is written as the sequence in ascending order, then find the sum of the first five terms of this sequence.

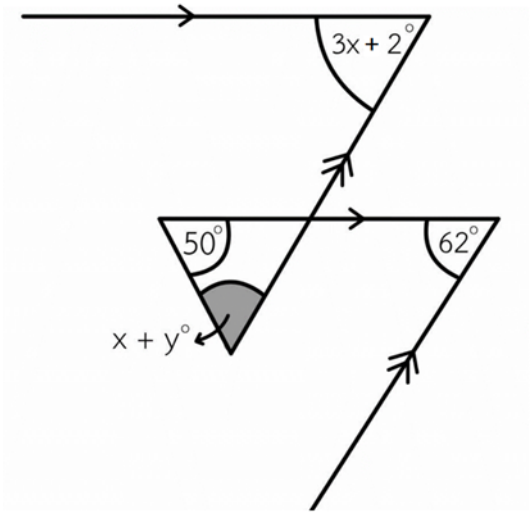
11. If the area of the circle, whose circumference is 24π, is $k\pi$, then find the value of k.

12. Baifern runs 1 kilometer north and then 1 kilometer northeast. Then she rests and drinks some water. After that she runs 1 kilometer southeast. If the displacement from the starting point is $a\sqrt{b}$, then find the value of $a+b$.

13. In a triangle ABC, given that $AB = 2AC$ and points D and E lie on sides AB and BC, respectively. The measure of angle BAE is equal to the measure of angle ACD. The point F is an intersection point between lines AE and CD such that the triangle CFE is an equilateral triangle. What is the measure of angle ACB?

14. A square $ABCD$ has sides of 12 units each. Let O be a center of a circle inscribed in the square $ABCD$. If the line BO intersects the arc of the circle at the point X, then find the length of the shortest line BX.
(Answer in 2 decimal places. Given $\sqrt{2} = 1.41, \sqrt{3} = 1.73, \sqrt{5} = 2.24$.)

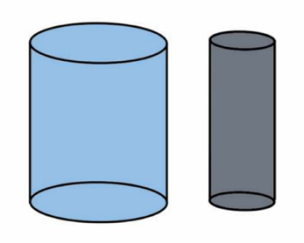
15. From the figure, find the value of 2y – x.



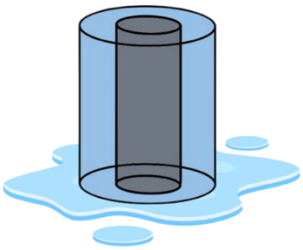
16. The land which is a rectangular shape has the width 3 meters shorter than its length. If this land has an area of 504 square meters, how long of the perimeter of this land?

17. Daniel does the experiment with a cylindrical glass and the steel cylindrical stick. The glass and stick have the same height. The experiment is following steps:

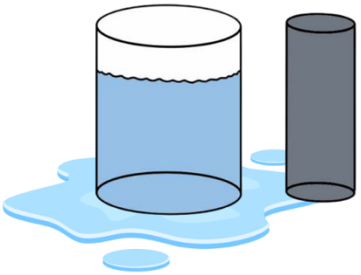
The 1st step : He prepared the stick with a diameter 4 centimeters and the glass with radius 5 centimeters. Then, fullfill water in to the glass as shown below.



The 2 nd step : He puts the stick into the glass. He observes that some water overflows as shown below.



The 3rd step : He takes out the stick. He observes that the volume of water in the glass is 1,452 cubic centimeters as shown below.

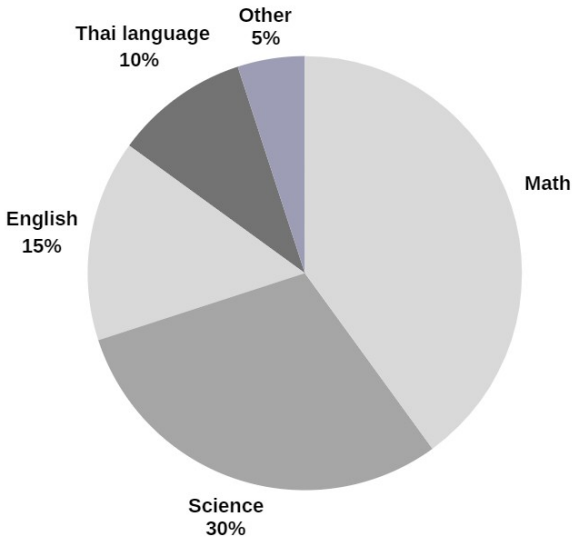


From the experiment. What is the height of the steel cylindrical stick?

($\pi = \frac{22}{7}$)

18. In a quadrilateral $ABCD$, given that $A\hat{B}C = A\hat{C}D = 90^\circ$ and the length of sides AC and CD are 20 units and 30 units, respectively. The diagonal AC intersects the diagonal BD at the point E and the length of AE is 5 units. Find the area of the quadrilateral $ABCD$.

19. The pie chart shows the number of M2/4 students who like each subject in the ASMOPSS school.



The number of students in each class of M2 is shown in the table below.

Grade	M2/1	M2/2	M2/3	M2/4	M2/5
Number	26	25	23	x	y

The number of M2/4 students is 6 less than the number of M2/5 students. The average number of students in each class is 24. According to the information, how much does the number of M2/4 students who like maths exceed the number of M2/4 students who like English?

***ข้อสอบมีการแก้ไขเนื่องจากข้อมูลรูปภาพไม่สมบูรณ์

20. Let x be a positive integer less than 100. Each digit of the number x is a prime number. If a number x is randomly selected, then find the probability of x that is a prime number. (Answer in 2 decimal places.)

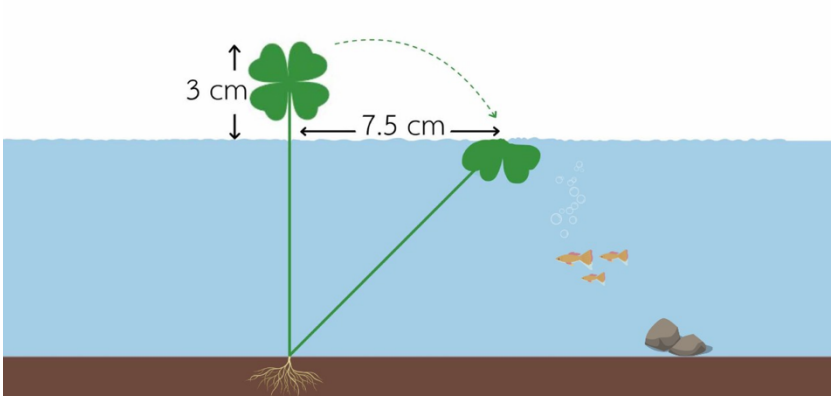
21. A taxi driver was hired by the 3 foreigners going to Pattaya from the airport. She drives for 2 hours with speed 75 kilometers per hour. The taxi car intakes the fuel with rate 30 kilometers per gallon. if she charges passenger \$0.5 per kilometer, and the cost of fuel is \$4.5 per gallon. What is her profit in dollars for this job (one-way trip)?

22. Let x and y be positive numbers that satisfy the equation $\frac{1}{x}+\frac{1}{y}=\frac{1}{5}$. Find the sum of all possible numbers x .

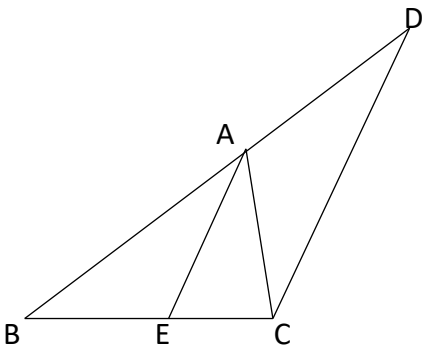
***แก้ไขเป็น

Let x and y be positive integers that satisfy the equation $\frac{1}{x}+\frac{1}{y}=\frac{1}{5}$. Find the sum of all possible numbers x .

23. A water shamrock has its roots anchored at the bottom of the pond. One of the stems which was originally 3 cm above the water surface was blown sideways by the wind as shown. Find the depth of the pond (Round to the hundredth place).

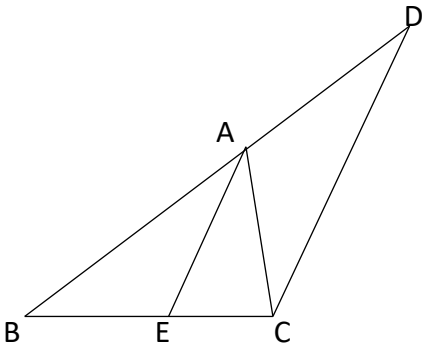


24. Let AE is the bisector of angle BAC and AE is parallel to CD Shown in the diagram. If AE =2x-1, AC = x, BE = 3 cm. and EC = 2 cm. What is the value of x?



***แก้ไขเป็น

Let AE is the bisector of angle BAC and AE is parallel to CD Shown in the diagram. If AB =2x-1, AC = x, BE = 3 cm. and EC = 2 cm. What is the value of x?



25. How many different arrangements are there of 1 puple tile, 2 pink tile, 2 green tiles, and 2 yellow tiles in a row from left to right?

GRADE 8 ANSWER KEY

No.	Answer	No.	Answer
1	56.00	14	2.46
2	26.00	15	76.00
3	14.00	16	90.00
4	10.00	17	22.00
5	4.00	18	360.00
6	714.00	19	5.00
7	123.00	20	0.40
8	7.00	21	52.50
9	16.00	22	46.00
10	101.00	23	7.88
11	144.00	24	2.00
12	4.00	25	630.00
13	90.00		

***หมายเหตุ ข้อ 19 คณะกรรมการตัดสินให้คะแนนฟรี เนื่องจากรูปภาพในชุด B ไม่สมบูรณ์
ข้อ 22, 24 คณะกรรมการตัดสินให้คะแนนฟรี เนื่องจากโจทย์ไม่สมบูรณ์