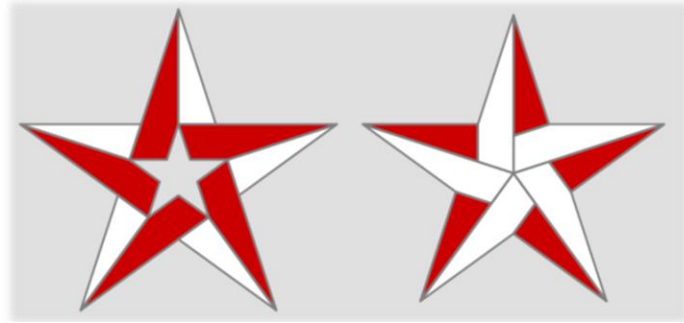


D
E
C
E
M
B
E
R

MONDAY



TUESDAY

WEDNESDAY

1 The sum of three digits gives 15. If one of them is replaced by 3, the product of the new digits gives 36. What digits were at the beginning?



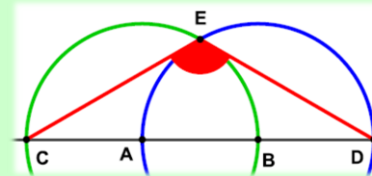
THURSDAY

FRIDAY

SATURDAY

SUN.

2



3

In the image there are two equal circles with centres A and B. Each of them passes through the centre of the other and the line that passes through A and B intersects the circles at C and D. If E is the intersection of the two circles, find $\angle CED$

4

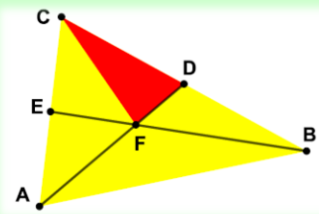
On a math test, if each boy had scored three more points than he did score, the class average would have been 1.2 points higher than it was. Find the percentage of girls in the class



5



6



7

Given the triangle $\triangle ABC$, let BE and AD be two medians whose intersection is F. Suppose $A_{\triangle FDC} = 3$. Find the area of the triangles $\triangle EAB$ and $\triangle AFB$ and the area of the quadrilateral EFDC.

8

Find the naturals less than 100 with the greatest number of divisors

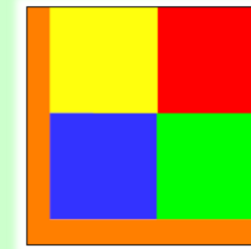


9

I have two dice, one red and one blue. If I roll both at the same time, what is the probability that the number on the red die is greater than the number on the blue die?



10



11

We divide a square of 125 cm^2 in area into five regions, four squares and an L-shaped polygon, all of equal area. What is the length, in cm, of the shortest side of the L-shaped polygon?

12

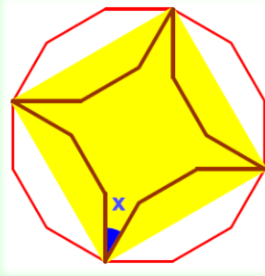


13

Find the naturals whose square and the number itself end in the same two digits and in the same order



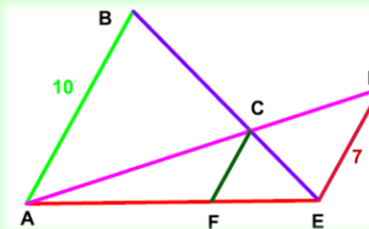
14



15

In a regular dodecagon we have inscribed a square, as shown in the figure. In addition, we have drawn the symmetric of the sides of the dodecagon with axis of symmetry the sides of the square. Find the measure of angle x and the area of the star if the side of the dodecagon is 1

16



17

In the attached figure the segments AB, CF and ED are parallel. If the length of AB is 10 and the length of ED is 7, find the length of the segment CF

18

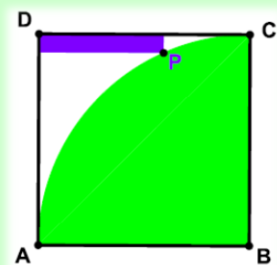
With the digits 1, 2, 3, 4 and 5 written in some order we form the PQRST number. If PQR is a multiple of 4, QRS is a multiple of 5 and RST is a multiple of 3, find the number PQRST



19



20



21

There is a square ABCD and a quadrant of radius CB and centre B. P is a point of the quadrant that is eight units from the DA side and one unit from the DC side. Find the side of the square

22

It is known from the natural N that it is a multiple of p but it is not a multiple of 2p. Find the remainder of N by dividing by 2p

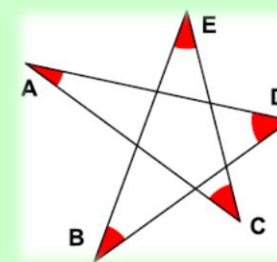


23

We inscribe a semicircle in an isosceles triangle of base 16 and height 15, as shown in the figure. Find the radius of the semicircle



24



25

What is the sum of the measure of the angles A, B, C, D and E of the star in the attached figure?

26



27

Two sides of a quadrilateral are 4 and 1. One of the diagonals, of length 2, divides the quadrilateral into two isosceles triangles. Find the perimeter of the quadrilateral



28

2	4		2
	3	3	
6		1	

29

Fill cells in the attached matrix with digits so that all rows add up to the same, all columns add up to the same, even though the sum of a row may be different from the sum of a column

30

Calculate the remainder of dividing $x^{100} - 2x^{99} + 4$ by $x^2 - 3x + 2$



31

A bag contains 3 red and 2 green balls. We remove, one by one and without return, balls from the bag until we have removed all of the same colour. What is the probability that we have drawn the 3 red balls?

