

## 1-EXERCISES GEOMETRY

1. Let's us considered two angles:  $A = 22^\circ 46' 54''$ , y  $B = 14^\circ 23' 54''$ . Compute
  - a. The supplementary of  $A+B$
  - b.  $A/3$
2. Calculate the measure of the angle formed by the bisectors of the angles  $32^\circ 41' 18''$  y  $48^\circ 35' 14''$ .
3. The double of an angle is  $93^\circ 29' 36''$ . Calculate the measure of the third part.
4. Calculate the convex angle of a watch at 5h and 20'. What's is the angle at 9:38?
5. Alejandra divides the cake in: 5 equals parts each one of  $36^\circ$  to share with her family, 3 equal parts of  $42^\circ 25' 33''$  for her best friends, and then 6 equal parts to finish the cake. ¿What is the measure of each one of the last 6 parts?
6. Calculate the measure of the angles of an isosceles triangle knowing that the different angle is  $35^\circ 24' 7''$ .
7. In a triangle one angle is  $19^\circ 43' 38''$  and another is  $105^\circ 31' 51''$ . What is the measure of the exterior angle of the unknown one?
8. The different angle in an isosceles triangle is  $42^\circ 28'$ . What is the exterior angle of any of the other two angles?
9. In the triangle ABC, it is known that  $B = 60^\circ$  and  $C = 20^\circ$ . Find out the measure of the angle formed by the bisector and the high from the vertex A.
10. In a triangle ABC, it is known  $A = 60^\circ$  and  $B = 100^\circ$ . Prolong AB a longitude  $BD=BC$ . Calculate the measure of all the angles in the triangle CBD.
11. One of the angles of a triangle is  $70^\circ$ . Calculate the measure of the angle formed by the bisectors of the other two angles of the triangle.
12. If the bisectors of angles A and B in a triangle form an angle of  $124^\circ$ . Calculate the measure of the angle C.
13. Proof that in any trapezium has two pairs of supplementary angles.
14. It is considered a regular hexagon ABCDEF. From the side AB it is built an square ABXY such that the line generate by AB divides the plane in two semi planes: one for the hexagon, and the other for the square. Calculate the angle CXY.
15. In the trapezium ABCD,  $A=72^\circ$ ,  $B=58^\circ 30'$ . Find out:
  - a. Angles C and D
  - b. The angle formed by prolonging not parallel sides.
  - c. The angle formed by the bisectors of angles C and D
  - d. The angle formed by the bisector of angles A and D.
16. The length of the side of a triangle is 10 cm and the other is 4 cm. What could it be the measure of the third side? Could it be isosceles?
17. The sum of all the interior angles of a regular polygon is  $2520^\circ$ . What is the measure of each angle of the polygon?
18. A regular polygon has 27 diagonals. Find out the measure of each angle of the polygon.
19. It is known that a rhombus a pair of angles measure the quart of the other. The smallest diagonal is prolonged a longitude equal to the side of the rhombus, the

- end of that prolongation is considered to build a segment with extremes in that point and in a vertex of the rhombus that is not in the smallest diagonal. Calculate the measure of angles of the new triangle formed outside the rhombus.
20. It is considered the square ABCD and the point E that is the middle point of segment AD. It is taken a point F in the side AB and another point G in the side DC such that EFG is a equilateral triangle. Calculate the measure of angles  $\widehat{EGD}$ ,  $\widehat{FED}$  and  $\widehat{FAC}$ .
21. Explain talking by phone how to do a perpendicular line to another passing by a concrete point.
22. Given  $\hat{A}=50^{\circ} 18' 41''$  and  $\hat{B}=25^{\circ} 57' 50''$ , calculate  $\hat{A} + \hat{B}$ ,  $\hat{A} - \hat{B}$ ,  $4 \times \hat{A}$  y  $2 \hat{B}$ .
23. ABC is an isosceles triangle, the angle A measures  $138^{\circ} 22' 54''$ . Find out the other two angles and the exterior angle of B.
24. In an square rectangle, an angle measures  $41^{\circ} 17' 23''$ , calculate the others angles and the angle formed by the bisectors of the angels of the main base.
25. Put in order from the smallest to the biggest, the measures:  $84^{\circ} 25' 7''$ ;  $500'$ ;  $330.001''$ . Compute the mean of them and express it in complex form.
26. Explain precisely, how to draw a rhombus in which one diagonal is the double of the other.
27. Two angles of a trapezium measure  $113^{\circ} 42' 4''$  y  $90^{\circ}$ . Calculate:
- The measure of the others angles.
  - The third of the semi sum of the three biggest angles.
  - The angle formed by prolonging the not parallel sides.
  - The angle formed by the bisectors of the angles with intermediate measures.
28. Two angles in a square measure  $27^{\circ} 38''$  and  $100^{\circ} 14' 58'$ . Calculate the complementary of the unknown angle.