Cambridge INTERNATIONAL SCHOOL
A LWES MANAGED SCHOOL
PALAHI ROAD, PHAGWARA

CAMBRIDGE International Examinations
Cambridge International School

Holiday's homework

Maths

Class – 9th

1. Find the value of a and b if $\frac{\sqrt{2}+\sqrt{3}}{3\sqrt{2}-2\sqrt{3}} = (a + b\sqrt{6})$
2. If a and b are rational numbers and $\frac{\sqrt{11}-\sqrt{7}}{\sqrt{11}+\sqrt{7}} = a - b\sqrt{77}$, then find the values of a and b.
3. In a survey, it was found that 9 out of every 11 households are donating some amount of their income to an orphanage or old age home or institutions for physically handicapped.
   I. What fraction of households is not donating?
   II. Write it in decimal form and find what type of decimal expansion it has?
   III. What values of society are depicted in this question?
4. If $(4)^{2x-1} - (16)^{x-1} = 384$, then find the value of x.
5. Assuming that x, y, z are positive real numbers and the exponents are all rational numbers, show that
6. Evaluate $\frac{40}{2\sqrt{10}+\sqrt{20}+\sqrt{40}-2\sqrt{5}}$ when it is given $\sqrt{10} = 3.162$ and $\sqrt{5} = 2.23$
7. Find the area of a triangle whose two sides are 24cm and 10cm and the perimeter of the triangle is 62cm.
8. A field is in the shape of a trapezium whose parallel sides are 25cm and 10cm. the non parallel sides are 14cm and 13cm. find the area of the field.
9. If ABC is an isosceles triangle with AB = AC. The perimeter of the triangle is 36cm and AB=10cm. what is the area of triangle?
10. ABCD is a rhombus whose one side is 10cm and one of its diagonal is 16cm. what is the area of rhombus?
11. A triangle and a parallelogram have the same area. If the sides of the triangle are 26cm, 28cm and 30cm and the parallelogram stands on the base 28cm, the find the height of the parallelogram.
12. The sides of a triangle are x, x+1, 2x-1 and its area is $x\sqrt{10}$. Find the value of x.
13. Sides of triangle are in the ratio 12: 17: 25 and its perimeter is 540cm. Find the area.
14. Find the zeroes of the polynomial $3x^2 + x - 2$.
15. If $ax^3 + bx + x - 6$ has (x + 2) as a factor and leaves remainder 4, when divided by (x – 2). Then find the values of a and b.
16. If the polynomial $p(x) = 2x^3 + bx^2 + 3x - 5$ and $q(x) = x^3 + x^2 - 4x - b$ leaves the same remainder , when divided by x – 2, then prove that $b = \frac{-13}{5}$.

17. Solve : $x^4 - 625$
18. Solve : $5(3x + y)^2 + 6(3x + y) - 8$
19. If $(\frac{8}{15})^3 - (\frac{1}{3})^3 - (\frac{1}{5})^3 = \frac{x}{75}$, then find the value of x.
20. Factorise $7x^2 + 2\sqrt{14}x + 2$.

PROJECT

- Construct a real life object or a work of art or any mathematical model to illustrate your understanding of congruent triangles. Use any one or more than one of the of the five criterions (SSS, SAS, AAS, ASA, HL) for congruency to make your model.

- Please mark all the congruent triangles for identification. They should be color coded to showcase one congruency criterion using that one colour (for instance, the two triangles with the ASA criterion could be colored in red). The angle and side measures should be labeled or written on a piece of paper.

- If you are creating a real-life project, possible materials could be charts, packing material, cardboard, craft, stickers, tooth picks, stickers and magnets etc. The geometric instruments that can be used for a real life project are a protractor, straight edged ruler etc.