

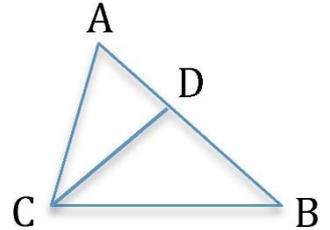
7-8 class

1. Solve the numerical puzzle, where A, B, C and D represent numbers from 0 to 9.
 $AAAA - BBB + CC - D = 1234$

2. If $\frac{a}{b} = \frac{7}{2}$, and $\frac{b}{c} = \frac{2}{3}$, find $\frac{a+b}{b-c}$

3. Given that $a = 44 + 4bc$ where b is a constant (number), and that $a = 20$ when $c = 2$. Find the value of c when $a = 16$.

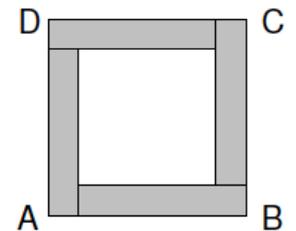
4. Given a triangle ABC and point D is positioned on the side AB so that $AD = DC = CB$, and $\angle A = 25^\circ$. Find the angle $\angle ACB$.



5. Given that $3^8 - 3^4 = 2^a \cdot 3^b \cdot 5^c$. Find the values of **a**, **b** and **c**.

6. Given three numbers 9, 27, 45. What is the difference between LCM (lowest common multiple) and HCF (highest common factor, or GCF -greatest common factor) of these number.

7. Square ABCD consists of one inner square (white) and four colored congruent rectangles. Square ABCD has an area of 324 cm^2 . What is the perimeter of colored rectangle?



8. There were four parrots in the cage. Their average price was 4500 dollars. One day during the cleaning of the cage the most beautiful parrot flew away. The average price of the remaining three parrots was 3000 dollars. What was the price of the parrot, which escaped?

9. The content area of three bounds of a right-angled parallelepiped are 6 cm^2 , 8 cm^2 and 12 cm^2 . Find the volume.

10. The sum of the digits of an eight-digit number is 7. What is the product of these digits?

11. If the line $Ax - 7y = -25$ passes through the point $(-3, -2)$, find the value of A.

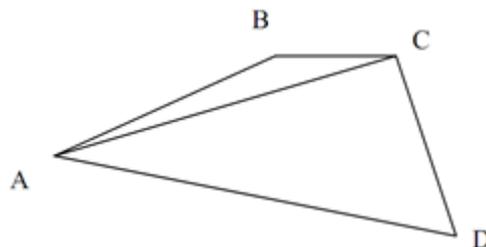
12. If $X = -2$, calculate the value 1021^{X^2+2X} .

13. A total weight of the glass full of milk is 540g. If the glass is half full of milk the total weight is 330g. Find the weight of the milk.

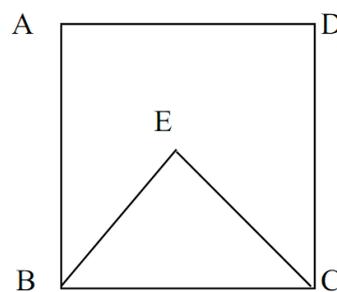
14. Find all natural excusive couples $(x; y)$, if $x^2 - y^2 = 21$.

15. If $ac + ad + bc + bd = 30$ and $c + d = 6$, find the value $\frac{a+b+c+d}{a+b}$.

16. The diagonal AC divides quadrilateral ABCD with perimeter 26 cm into two triangles with perimeters 22cm and 18cm. Find the length of the diagonal AC.



17. ABCD is a square and EBC is an equilateral triangle. Find the angle AED.



18. One mouse said to another, «If you give me one piece of cheese, then we will have an equal number of pieces». The other mouse replied, «If you give me one piece of cheese, then I will have double the number you have.» How many pieces of cheese do they have in total?