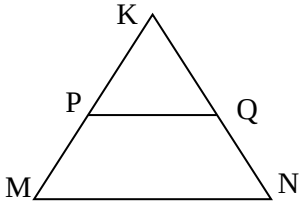
Little Angels Public School, Barpali

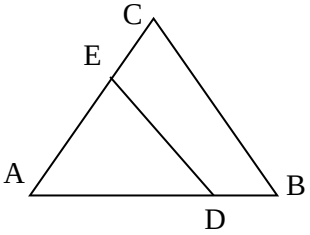
Holiday Homework (2022-23)

Class - X

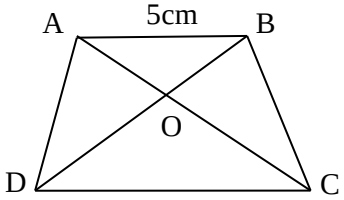
1. Express 556920 as the product of its prime factors.
2. Find the largest positive integer that will divide 398, 436, 542, leaving remainder 7, 11, 15 respectively.
3. The HCF of two numbers is 16 and their product is 3072. Find their LCM.
4. Write the smallest number which is divisible by both 306 and 657.
5. Prove that $(\sqrt{2}+\sqrt{5})$ is irrational.
6. Find the sum of the exponents of the prime factors in the prime factorization of 196.
7. If two positive integers 'a' and 'b' are expressible in the form $a = pq^2$ and $b = p^3q$, p, q being prime numbers then LCM (a,b) is _____
8. Find the zeros of the polynomial $\left(x^2+\frac{1}{6}x-2\right)$ and verify the relation between the coefficients and zeros of the polynomial.
9. If $\propto$ and β are the zeros of the quadratic polynomial, $f(x) = x^2 - x - 2$, find a polynomial whose zeros are $2 \propto +1$ and $2\beta + 1$.
10. If $\propto$ and β are zeros of the polynomial $f(x) = x^2 - 5x + k$ such that $\propto -\beta = 1$. Find the value 'K'.
11. If $\propto$ and β are the zeros of the quadratic polynomial. $f(x) = x^2 - 5x + 4$, Find the value of $\frac{1}{\propto}+\frac{1}{\beta}-2 \propto \beta$.
12. If (x+2) is a factor of $x^2 + ax + 2b$ and a+b = 4, then find a and b.
13. If one zero of the quadratic polynomial $2x^2 - 6kx + 6x - 7$ is negative of the other. then find 'K'.
14. In the given figure
    PQ || MN If
    $\frac{KP}{PM}=\frac{4}{13}$ and and KN = 20.4
    Find KQ



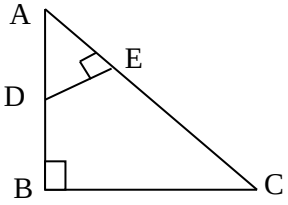
15. In the given figure. DE||BC
    If AD = x, DB = x – 2
    AE = x+2 and EC = x + 1
    Find the value of x.



16. In the given figure
    $\frac{AO}{OC}=\frac{BO}{OD}=\frac{1}{2}$ and
    AB = 5 cm, Find the
    value of DC.



17. In ΔABC if $AB \perp BC$
    and $DE \perp AC$. Prove that
    ΔABC~ ΔAED.

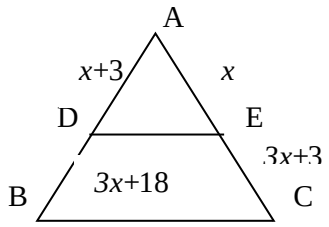


18. A vertical stick 12 m long casts a shadow 8m long on the ground. At the same time a tower casts the shadow 40 m long on the ground. Determine the heights of the tower.

19. In ΔABC, D and E are points on side AB and AC, respectively such that DE || BC and $\frac{AD}{DB} = \frac{3}{1}$ If EA = 3.3cm then find AC.

20. If in ΔABC and DEF, $\frac{AB}{De} = \frac{Bc}{FD}$ then they will be similar when _____

21. In the given figure, find
the value of '*x*' for which DE || AB and
AD = *x* + 3, AE = *x*
BD = 3*x* + 19 and EC = 3*x* + 4.



22. If ΔABC and ΔDEF are similar such that 2AB=DE and BC = 8cm. then find EF.

23. Prove that $\sqrt{5}$ is an irrational number.

24. Two number are in the ratio 3:4 and their LCM is 120, then find the sum of the numbers.

25. The LCM of 2*x*, 5*x* and 7*x* is _____ where *x* is a positive integers.