MATHS REVISION

1) Find the values of 'a' and 'b':

$$\frac{\sqrt{7}-2}{\sqrt{7}+2} = a\sqrt{7} + b$$

2) If x = $1 - \sqrt{2}$, find the value of $\left(x - \frac{1}{x}\right)^3$.

3) Calculate the amount and the compound interest on ₹ 16000 in 3 years, when the rates of interest for successive years are 10%, 14% and 15% respectively.

4) The difference between C.I. and S.I. on ₹ 7500 for two years is ₹ 12 at the same rate of interest per annum. Find the rate of interest.

5) The difference between two positive numbers is 5 and the sum of their squares is 73. Find the product of these numbers.

6) If $2x - 3y = 10$ and $xy = 16$, find the value of $8x^3 - 27y^3$.

7) If $a^2 + b^2 + c^2 = 35$ and $ab + bc + ca = 23$; find $a + b + c$.

8) Factorise :

$25(2a - b)^2 - 81b^2$

9) Factorise:

$12(3x - 2y)^2 - 3x + 2y - 1$

10) Solve: $\frac{3x+2}{2} - \frac{4y+3}{9} = 13$

11) Solve :

$13x + 11y = 70$

$11x + 13y = 74$

12) Solve: If $10y = 7x - 4$ and $12x + 18y = 1$; find the values of $4x + 6y$ and $8y - x$.

13) Solve by Using cross-Multiplication Method:

Given, equations : $\frac{x}{7} - \frac{y}{2} = 2$ and $\frac{x-y}{3} = 3$

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14) Evaluate :

$$\left(\frac{16}{81}\right)^{-\frac{3}{4}} \times \left(\frac{49}{9}\right)^{\frac{3}{2}} \div \left(\frac{343}{216}\right)^{\frac{2}{3}}$$

15) Simplify :

$$\frac{5^{n+3}-6\times5^{n+1}}{9\times5^{n}-5^{n}\times2^{2}}$$

16)

Prove that :

$$\left(\frac{x^a}{x^b}\right)^{a+b-c}\left(\frac{x^b}{x^c}\right)^{b+c-a}\left(\frac{x^c}{x^a}\right)^{c+a-b} = 1$$

17)Construct a regular hexagon of side 4 cm.

18) The radius of a circle is 17.0 cm and the length of perpendicular drawn from its center to a chord is 8.0 cm. Calculate the length of the chord.

19) A chord of length 24 cm is at a distance of 5 cm from the center of the circle. Find the length of the chord of the same circle which is at a distance of 12 cm from the centre.

20)

Construct a frequency polygon for the following data :

Class-intervals	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34
Frequency	5	8	12	9	4

21)

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Draw frequency polygons for the following frequency distribution :

(a) using histogram

(b) without using histogram.

C.I.	10 - 30	30 - 50	50 - 70	70 - 90	90 - 110	110 - 130	130 - 150
f	4	7	5	9	5	6	4

22) The following data have been arranged in ascending order. If their median is 63, find the value of x.

34, 37, 53, 55, x, x + 2, 77, 83, 89 and 100.

23) The mean weight of 60 students in a class is 40 kg. The mean weight of boys is 50 kg while that of girls is 30 kg. Find the number of boys and girls in the class.

24) Given : $\sin \theta = \frac{p}{q}$, find $\cos \theta + \sin \theta$ in terms of p and q.

25) Evaluate:

$\sin 15° \cos 15° - \cos 75° \sin 75°$