CLASS 12 BOARDS MATHS SOLUTIONS

YEAR 2012

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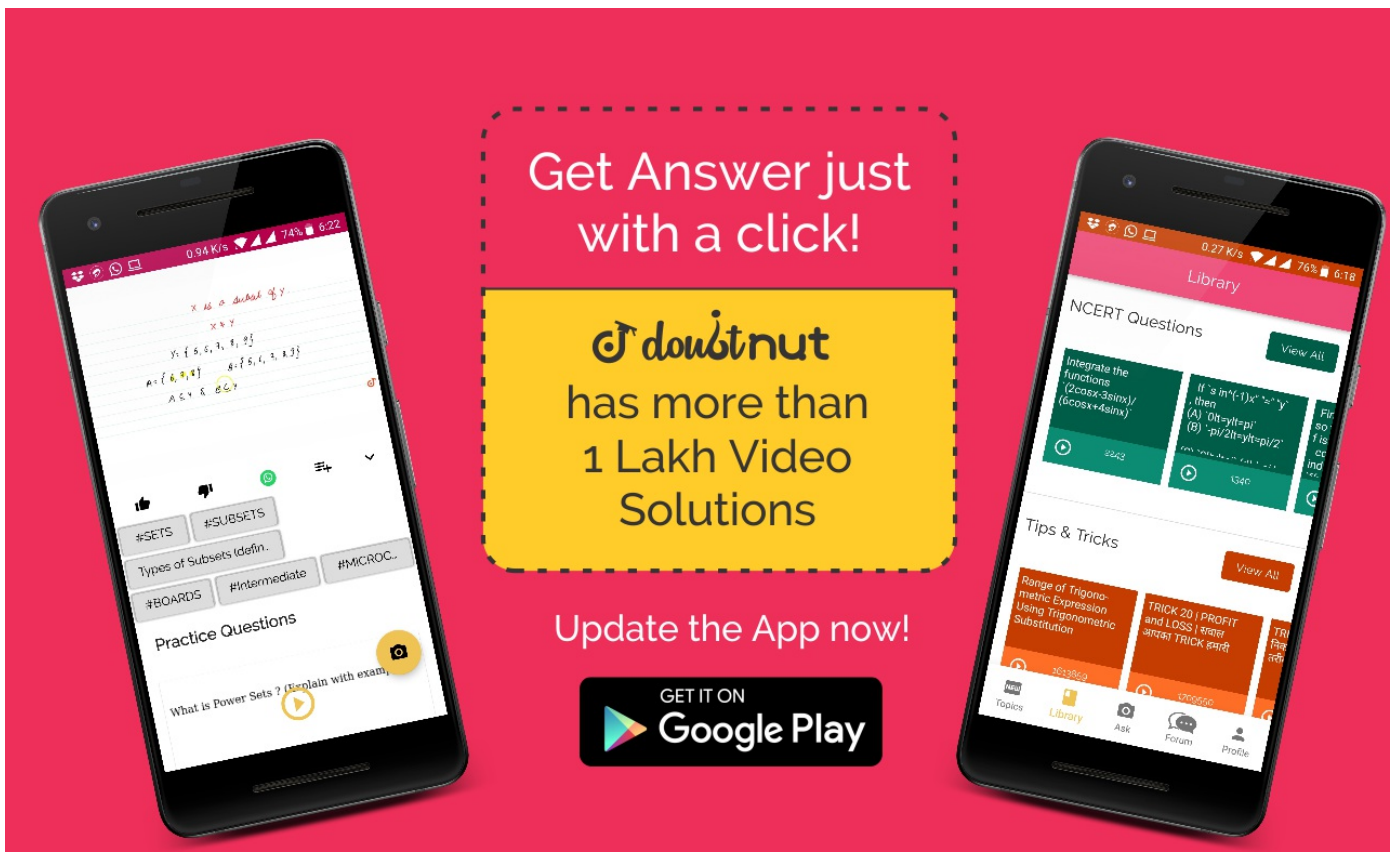
Ques No.	Question
1	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Prove The following: `"cos"(sin^(-1)3/5+cot^(-1)3/2)=6/(5\ sqrt(13))` Watch Free Video Solution on Doubtnut
2	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Find the principal value of `tan^(-1)sqrt(3)-sec^(-1)(-2)` Watch Free Video Solution on Doubtnut
3	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Find the value of `x+y` from the following equation: `2\ [x5 7y-3]+[3-4 1 2]=[7 6 15 14]` Watch Free Video Solution on Doubtnut
	
4	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** If `A^T=[3 4-1 2 0 1]\ ` and `B=[-1 2 1 1 2 3],` then find `A^T-\ B^T` Watch Free Video Solution on Doubtnut
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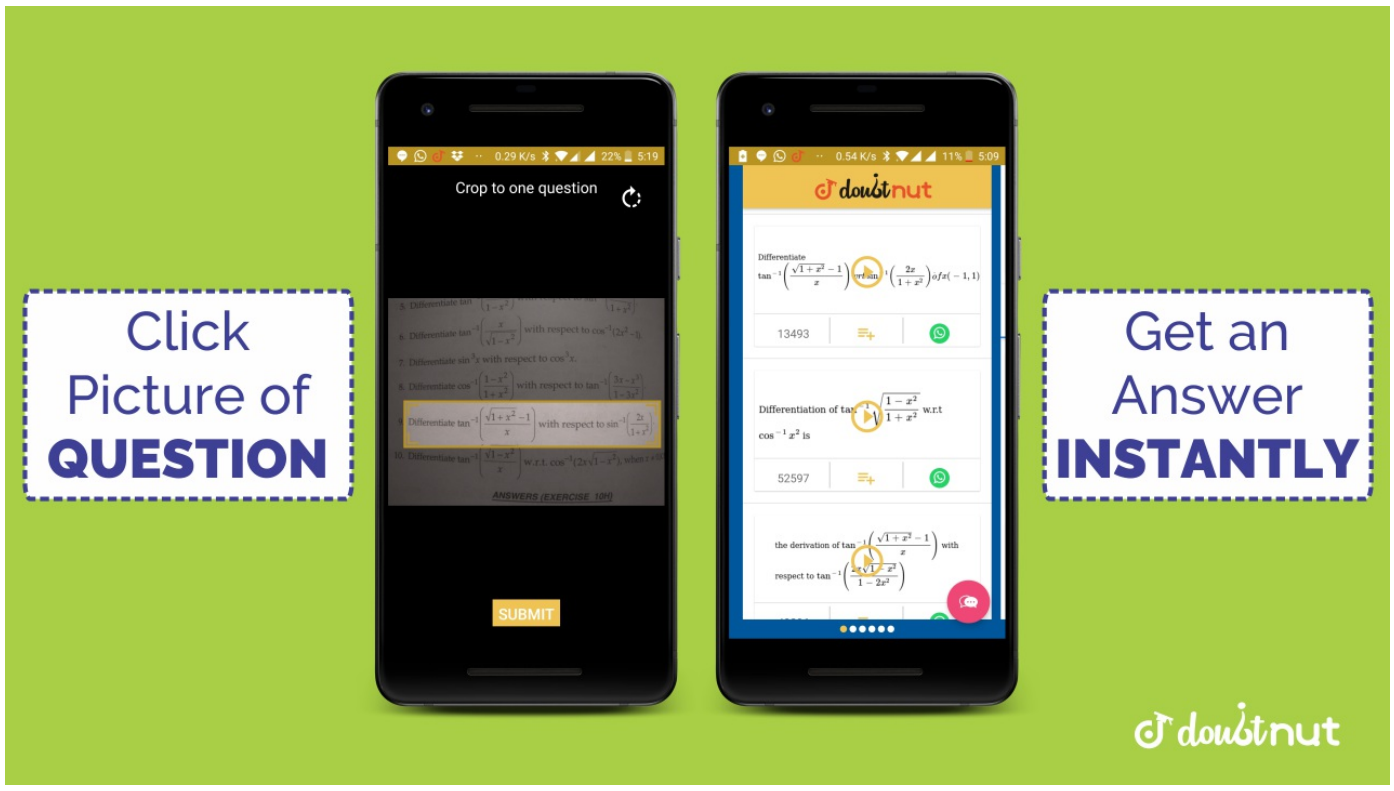
5	Let A be a square matric of order `3\ xx\ 3` . Write the value of `2A` , where `A=4` . Watch Free Video Solution on Doubtnut
6	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Evaluate : `int_0^2sqrt(4-x^2)\ dx` Watch Free Video Solution on Doubtnut
7	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Given `inte^x\ (tanx+1)secx\ dx=e^xf(x)+c` write `f(x)` satisfying the above. Watch Free Video Solution on Doubtnut
doubtnut पढ़ना हुआ आसान	
8	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Write the value of `( hat i\ xx\ hat j)` . ` hat k+ hat i\ dot\ hat j` Watch Free Video Solution on Doubtnut
9	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Find the scalar components of the vector ` vec A B` with initial point `A(2,1)` and terminal point `B(-5,7)dot` Watch Free Video Solution on Doubtnut
10	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Find the distance of the plane `3x\ \ 4y+12 z=3` from the origin. Watch Free Video Solution on Doubtnut
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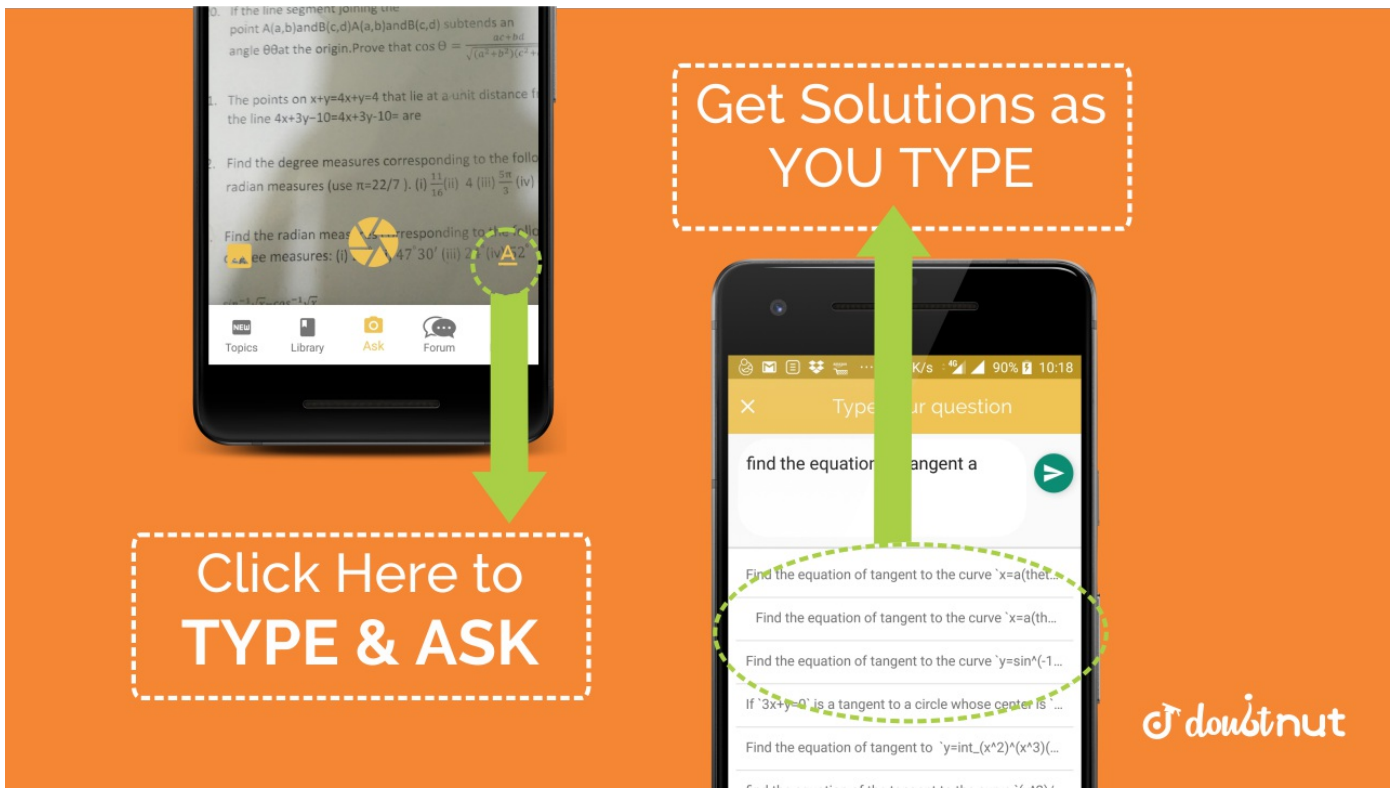
11	Using properties of determinants, show that `|b+c a a b c+a b cc a+b|=4a b c` Watch Free Video Solution on Doubtnut
doubtnut पढ़ना हुआ आसान	
12	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Show that `f\ : NvecN ,\ ` given by `f(x)={x+,\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ if\ x\ i s\ od dx-1,\ \ if\ x\ i s\ e v e n` is both one-one and onto. Watch Free Video Solution on Doubtnut
13	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Consider the binary operations*: `R\ x\ Rvec\ ` and `o\ : R\ x\ Rvec\ ` defined as a `*\ b=|a-b|` and `aob=a` for all `a ,\ b\ in Rdot` Show that * is commutative but not associative, `'o'` is associative but not commutative. Watch Free Video Solution on Doubtnut
14	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** If `x=a^s in^((-1))\ t ,\ y=a^cos^((-1))t ,\ ` show that `(dy)/(dx)=-y/x` Watch Free Video Solution on Doubtnut
15	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Differentiate `tan^(-1)[(sqrt(1+x^2)-1)/x]` with respect to `x` Watch Free Video Solution on Doubtnut

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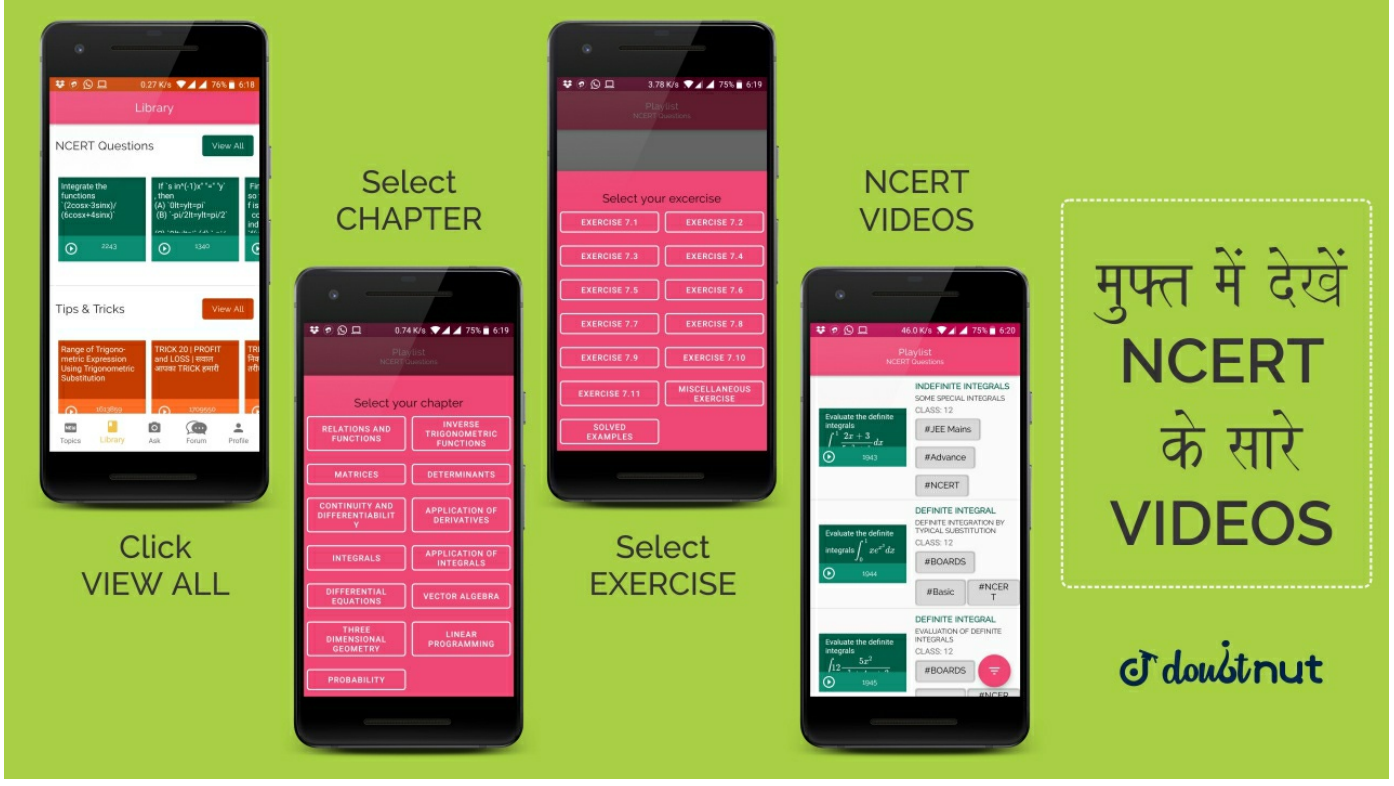

16	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** If `x=a(cost+tsint)\ ` and `y=a(sint-tcost),\ 0 Watch Free Video Solution on Doubtnut
17	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** A ladder 5 m long is leaning against a wall. The bottom of the ladder is pulled along the ground, away from the wall, at the rate of 2 cm/s. How fast is its height on the wall decreasing when the foot of the ladder is 4 m away from the wall? Watch Free Video Solution on Doubtnut
18	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Evaluate : `int_(-1)^2|x^3-x|\ dx` Watch Free Video Solution on Doubtnut
19	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Evaluate: `int_0^pi(xsinx)/(1+cos^2x)\ dx` Watch Free Video Solution on Doubtnut

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20	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Form the differential equation of the family of circles in the second quadrant and touching the coordinate axes. Watch Free Video Solution on Doubtnut
21	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Find the particular solution of the differential equation `x(x^2-a)(dy)/(dx)=1;\ \ \ \ \ y=0\ \ "w h e n"\ x=2` Watch Free Video Solution on Doubtnut
22	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Solve the following differential equation: `(1+x^2)dy+2x y\ dx=cotx\ dx ; x!=0` Watch Free Video Solution on Doubtnut
23	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Let ` vec a= hat i+4 hat j+2 hat k ,\ vec b=3 hat i-\ 2 hat j+7 hat k` and ` vec c=2 hat i- hat j+4 hat k` Find a vector ` vec p` which is perpendicular to both ` vec a` and ` vec b` and ` vec p` . ` vec c=18.` Watch Free Video Solution on Doubtnut
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24	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Find the coordinates of the point where the line through the points A (3, 4, 1) and B (5, 1, 6) crosses the XY-plane. Watch Free Video Solution on Doubtnut
25	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Two cards are drawn simultaneously (without replacement) from a well-shuffled pack of 52 cards. Find the mean and variance of the number of red cards. Watch Free Video Solution on Doubtnut
26	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Using matrices, solve the following system of equations: `2x+3y+3z=5,\ x\ \ 2y+z=\ 4,\ 3x\ \ y\ \ 2z=3` Watch Free Video Solution on Doubtnut
27	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Prove that the radius of the right circular cylinder of greatest curved surface area which can be inscribed in a given cone is half of that of the cone. Watch Free Video Solution on Doubtnut
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28	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** OR An open box with a square base is to be made out of a given quantity of cardboard of area`\ c^2` square units. Show that the maximum volume of the box is `(c^3)/(6\ sqrt(3))` cubic units. Watch Free Video Solution on Doubtnut
29	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Evaluate: `int(xsin^(-1)x)/(sqrt(1-x^2))\ dx` Watch Free Video Solution on Doubtnut
30	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Evaluate: `int(x^2+1)/((x-1)^2(x+3))\ dx` Watch Free Video Solution on Doubtnut
31	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Find the area of the region `{(x , y)\ : x^2+y^2lt=4,\ x+y\ geq2}` Watch Free Video Solution on Doubtnut
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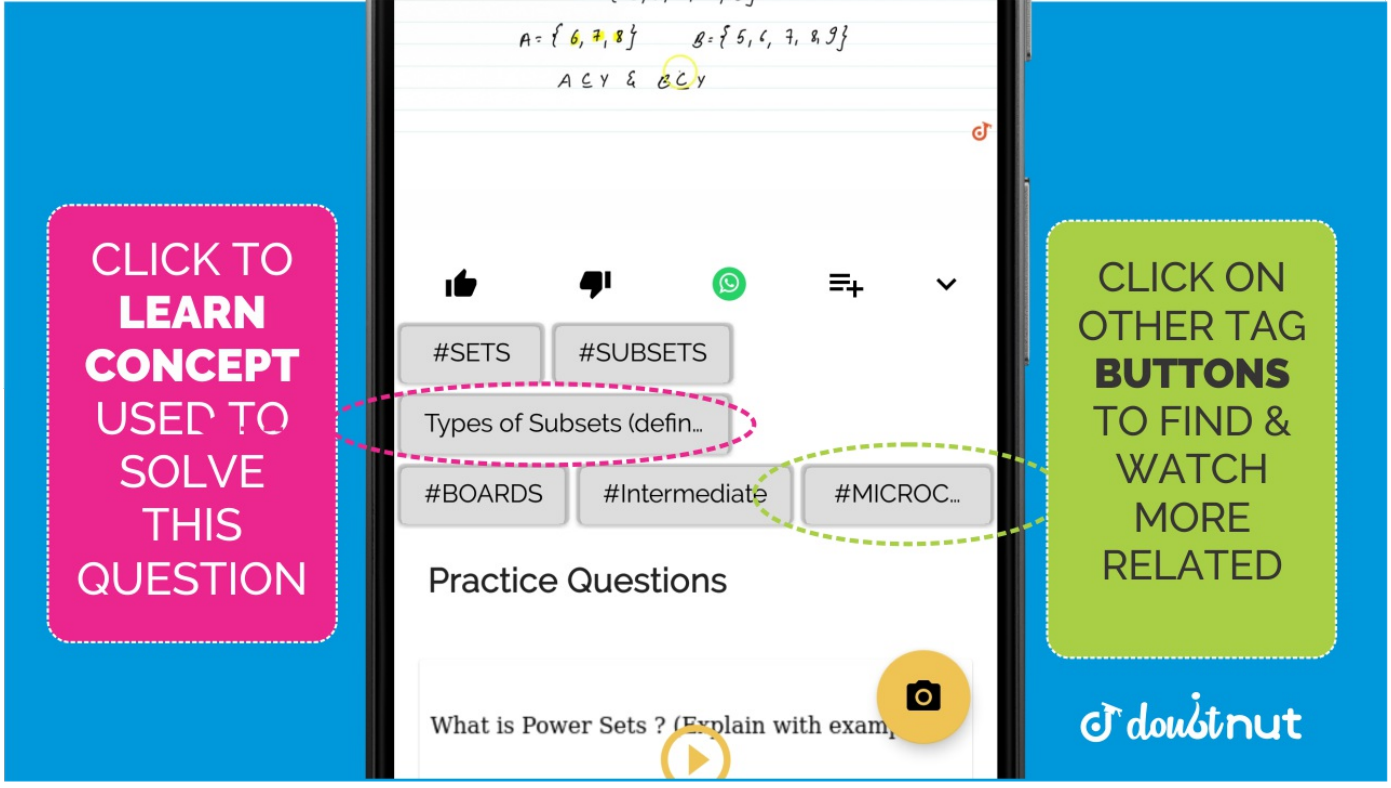

32	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** If the lines `(x-1)/(-3)=(y-2)/(-2y)=(z-3)/2` and `(x-1)/k=(y-2)/1-(z-3)/5` are perpendicular, find the value of `k` and hence find the equation of plane containing these lines. Watch Free Video Solution on Doubtnut
33	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** Suppose a girl throws a die. If she gets a 5 or 6, she tosses a coin 3 times and notes the number of heads. If she gets 1,2,3 or 4 she tosses a coin once and notes whether a head or tail is obtained. If she obtained exactly one head, what is the probability that she threw 1,2,3, or 4 with the die? Watch Free Video Solution on Doubtnut
34	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || ALL INDIA** A dietician wishes to mix two types of foods in such a way that the vitamin contents of the mixture contains at least 8 units of vitamin A and 10 units of vitamin C. Food I contains 2 units/kg of vitamin A and 1 units/kg of vitamin C while Food II contains 1 unit/kg of vitamin A and 2 units/kg of vitamin C. It costs Rs.5 per kg to purchase Food I and Rs.7 per kg to purchase Food II. Determine the minimum cost of such a mixture. Formulate the above as a LPP and solve it graphically. Watch Free Video Solution on Doubtnut
35	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** If a line has direction ratios 2, –1, –2, then what are its direction cosines? Watch Free Video Solution on Doubtnut

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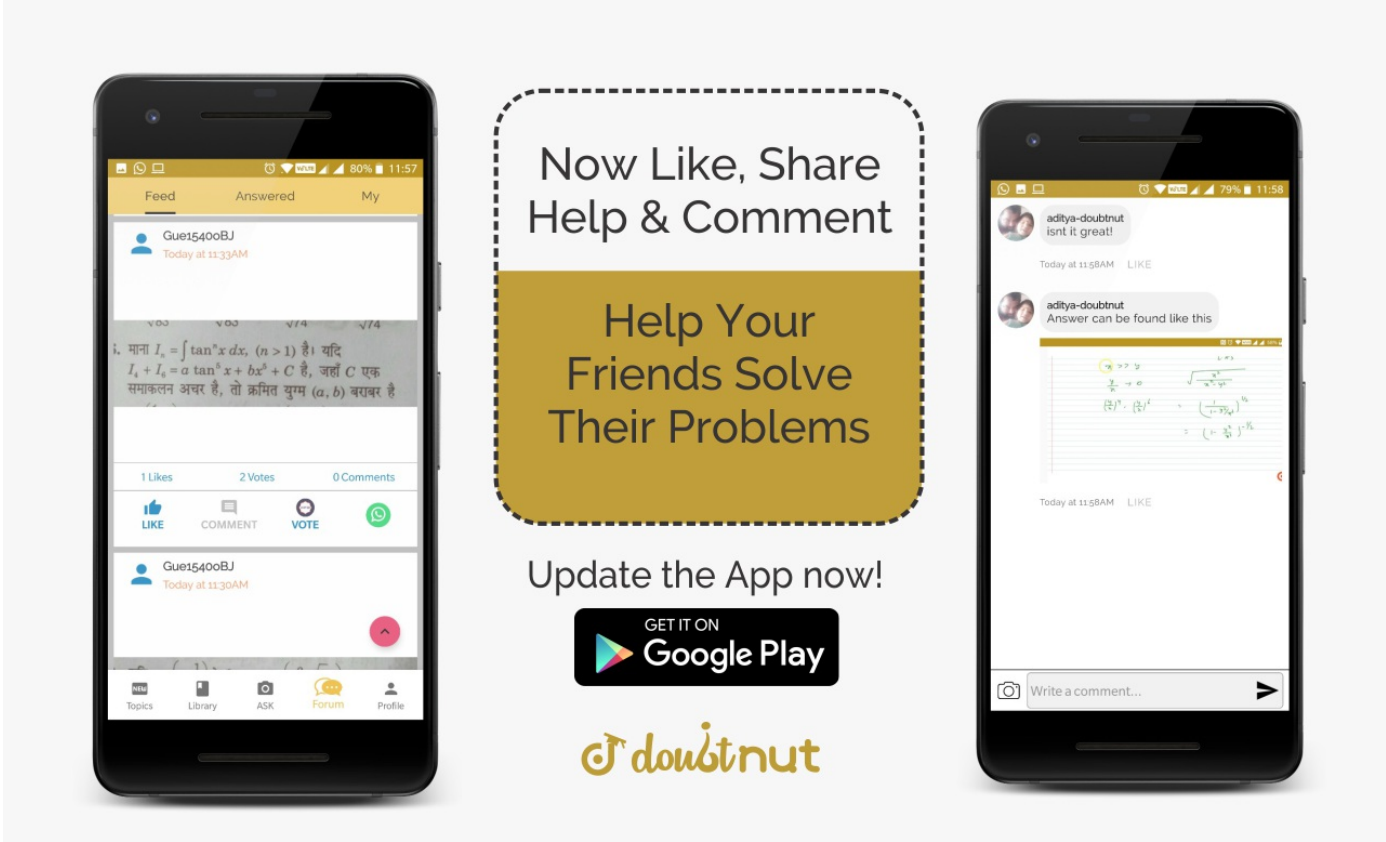

36	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Find `lambda` when the projection of ` vec a=lambda hat i+ hat j+4 hat k` on ` vec b=2 hat i+6 hat j+3 hat k` is 4 units. Watch Free Video Solution on Doubtnut
37	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Evaluate: `int_2^3 1/x\ dx` Watch Free Video Solution on Doubtnut
38	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Evaluate : `int(1-x)sqrt(x)\ dxdot` Watch Free Video Solution on Doubtnut
39	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** If `"Delta"=|5 3 08 2 0 1 1 2 3|\ ,` write the minor of the element `a_(23)` Watch Free Video Solution on Doubtnut

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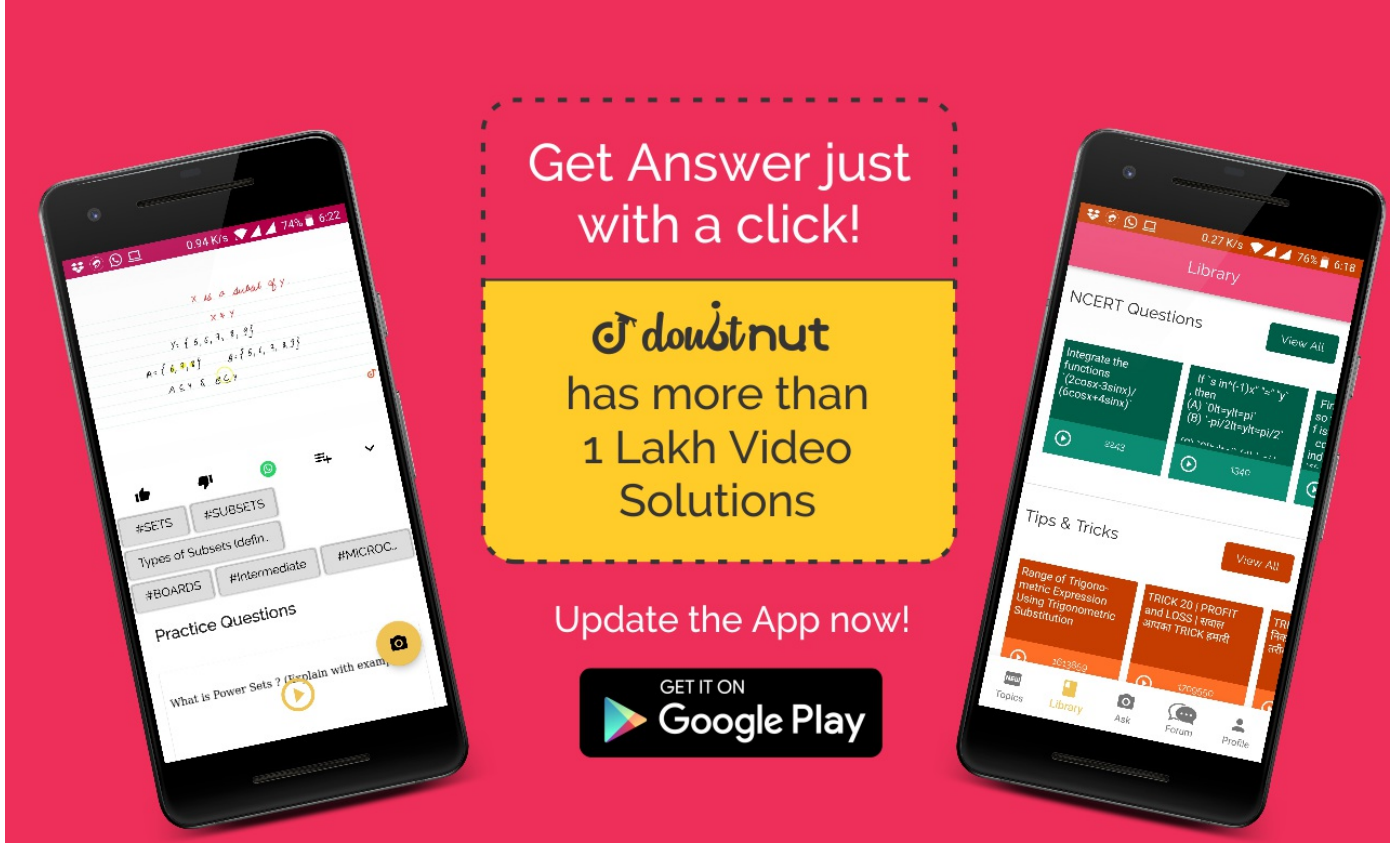

40	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** If `[2 3 5 7]\ [1-3-2 4]=[-4 6-9x],` write the value of `x` Watch Free Video Solution on Doubtnut
41	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Simplify : `cos\ theta` `[costhetas intheta-s inthetacostheta]+sintheta\ \ [sintheta-costhetacosthetas intheta]` Watch Free Video Solution on Doubtnut
42	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Write the principal value of `cos^(-1)(1/2)-2sin^(-2)(-1/2)` Watch Free Video Solution on Doubtnut
43	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Let * be a binary operation of `N` given by a `a*b=L C M\ (a , b)` for all `a , b in Ndot` Find `5*7.` Watch Free Video Solution on Doubtnut

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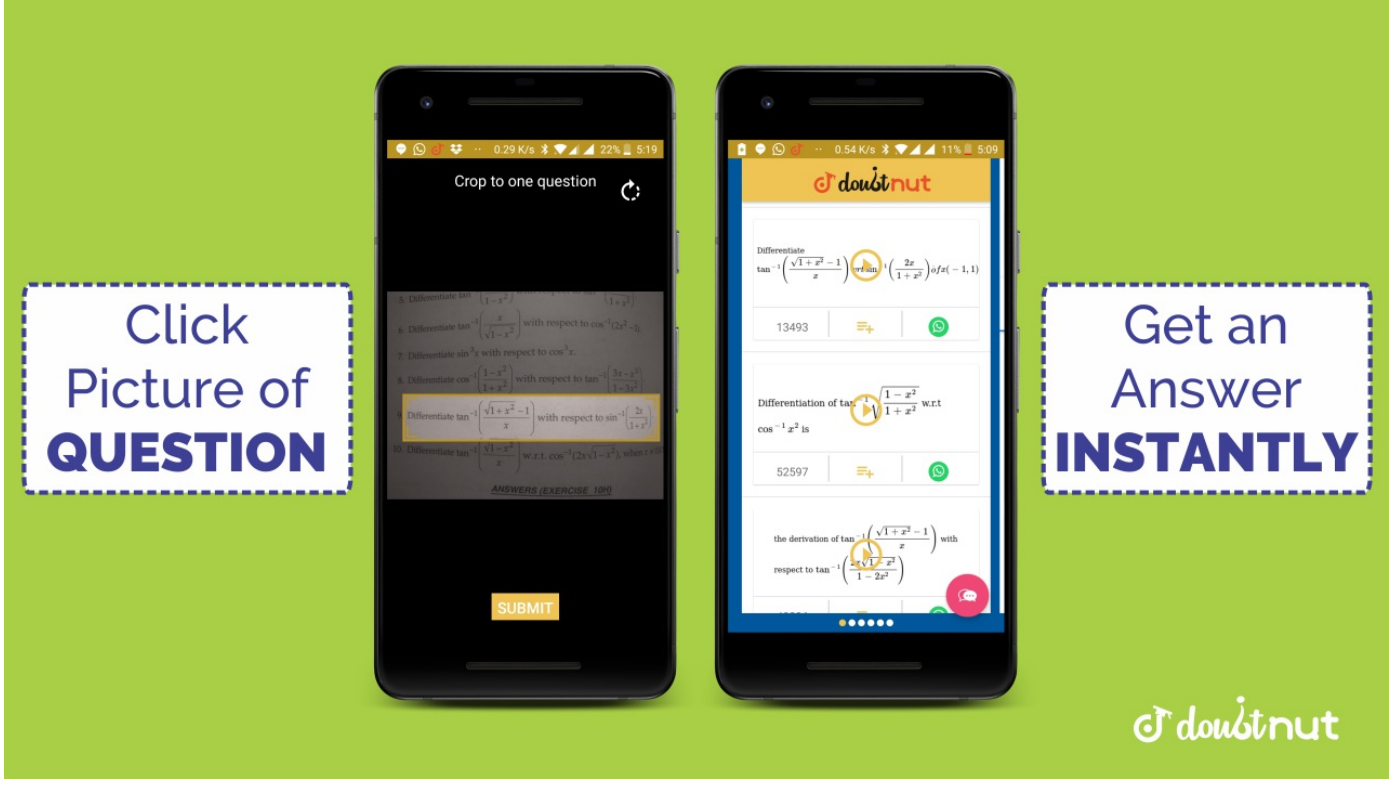

44	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** If `(cosx)^y=(cosy)^x` , find `(dy)/(dx)` Watch Free Video Solution on Doubtnut
45	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** If `siny=xsin(a+y),` prove that `(dy)/(dx)=(sin^2(a+y))/(sina)` Watch Free Video Solution on Doubtnut
46	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** How many times must a man toss a fair coin, so that the probability of having at least one head is more than 80%? Watch Free Video Solution on Doubtnut
47	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Find the Vector and Cartesian equations of the line passing through the point (1, 2, 4) and perpendicular to the two lines `(x-8)/3=(y+19)/(-16)=(z-10)/7` and `(x-15)/3=(y-29)/8=(z-5)/(-5)` Watch Free Video Solution on Doubtnut

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48	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** If ` vec a ,\ vec b ,\ vec c` are three vectors such that `| vec a|=5,\ | vec b|=12\ ` and `| vec c|=13 ,` and ` vec a+ vec b+ vec c= vec O ,` find the value of ` vec adot vec b+ vec bdot vec c+ vec cdot vec a` . Watch Free Video Solution on Doubtnut
49	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Solve the following differential equation: `2x^2(dy)/(dx)-\ 2x y+y^2=0` Watch Free Video Solution on Doubtnut
50	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Find the particular solution of the following differential equation: `(dy)/(dx)=1+x^2+y^2+x^2y^2,` given that `y=1\ ` when `x=0.` Watch Free Video Solution on Doubtnut
51	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Evaluate: `intsinxsin2xsin3x dx` Watch Free Video Solution on Doubtnut
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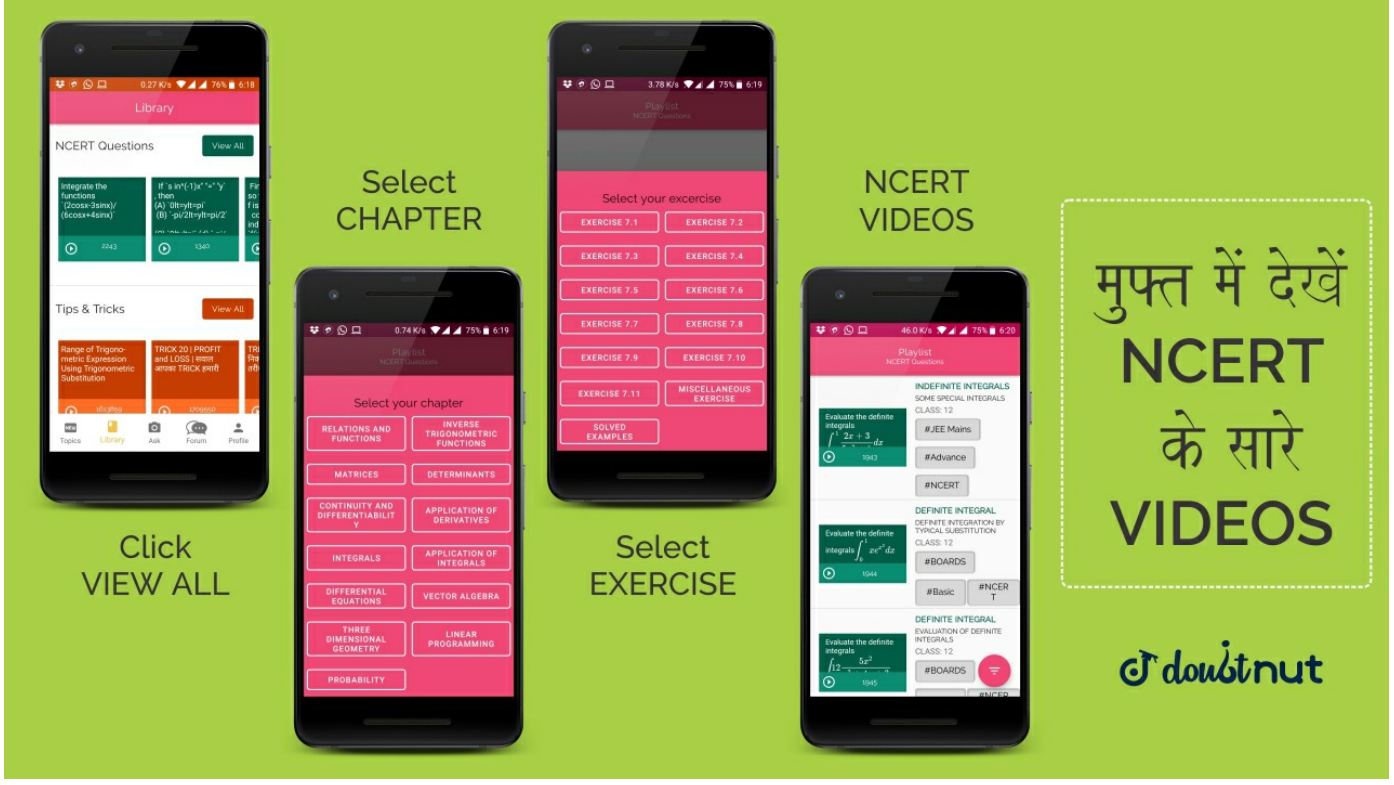

52	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Evaluate: `int2/((1-x)(1+x^2))\ dx` Watch Free Video Solution on Doubtnut
53	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Find the point on the curve `y=x^3-11 x+5` at which the equation of tangent is `y=x-11` Watch Free Video Solution on Doubtnut
54	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Using differentials, find the approximate value of `sqrt(49. 5)` Watch Free Video Solution on Doubtnut
55	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** If `y=(t a n^(-1)\ x^2)` , show that `(x^2+1)^2(d^2\ y)/(dx^2)+2x(x^2+1)(dy)/(dx)=2.` Watch Free Video Solution on Doubtnut
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56	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Using properties of determinants, prove that `|b+c q+r y+z c+a r+p z+x c+b p+q x+y|=2\ |a p x b q y c r z|` Watch Free Video Solution on Doubtnut
57	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Prove that `t a n^(-1)((cosx)/(1+sinx))=pi/4-x/2,\ x in (-pi/2,pi/2)` Watch Free Video Solution on Doubtnut
58	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Prove that `s in^(-1)(8/(17))+sin^(-1)(3/5)=cos^(-1)((36)/(85))` Watch Free Video Solution on Doubtnut
59	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Let `A=R-{3}` and `B=R-[1]dot` Consider the function `f: AvecB` defined by `f(x)=((x-2)/(x-3))dot` Show that `f` is one-one and onto and hence find `f^(-1)` Watch Free Video Solution on Doubtnut
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60	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Find the equation of the plane determined by the points A(3, –1, 2), B(5, 2, 4) and C(–1, –1, 6) and hence find the distance between the plane and the point P(6, 5, 9). Watch Free Video Solution on Doubtnut
61	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Of the students in a college, it is known that 60% reside in hostel and 40% day scholars (not residing in hostel). Previous year results report that 30% of all students who reside in hostel attain ‘A’ grade and 20% of day cholars attain ‘A’ grade in their annual examination. At the end of the year, one student is chosen at random from the college and he has an ‘A’ grade, what is the probability that the student is a hosteler? Watch Free Video Solution on Doubtnut
62	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** A manufacturer produces nuts and bolts. It takes 1 hour of work on machine A and 3 hours on machine B to produce a package of nuts. It takes 3 hours on machine A and 1 hour on machine B to produce a package of bolts. He earns a profit of Rs.17.50 per package on nuts and Rs.7 per package of bolts. How many packages of each should be produced each day so as to maximize his profits if he operates his machines for at the most 12 hours a day? Form the linear programming problem and solve it graphically. Watch Free Video Solution on Doubtnut
63	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Prove that: `int_0^(pi/4)(sqrt(tanx)+sqrt(cotx)\ dx=sqrt(2)dotpi/2` Watch Free Video Solution on Doubtnut

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64	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Evaluate: `int_1^3(2x^2+5x)dx` as limit of a sum Watch Free Video Solution on Doubtnut
65	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Using the method of integration, find the area of the region bounded by the lines `3x\ -\ 2y+1=0,\ 2x+3y\ -\ 21=0\ a n d\ x\ -\ 5y+9=0.` Watch Free Video Solution on Doubtnut
66	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Show that the height of a closed right circular cylinder of given surface and maximum volume, is equal to the diameter of its base. Watch Free Video Solution on Doubtnut
67	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Using matrices, solve the following system of linear equations: `x\ -\ y+2z=7` `3x+4y\ -\ 5z=-5` `2x\ -\ y+3z=12` Watch Free Video Solution on Doubtnut

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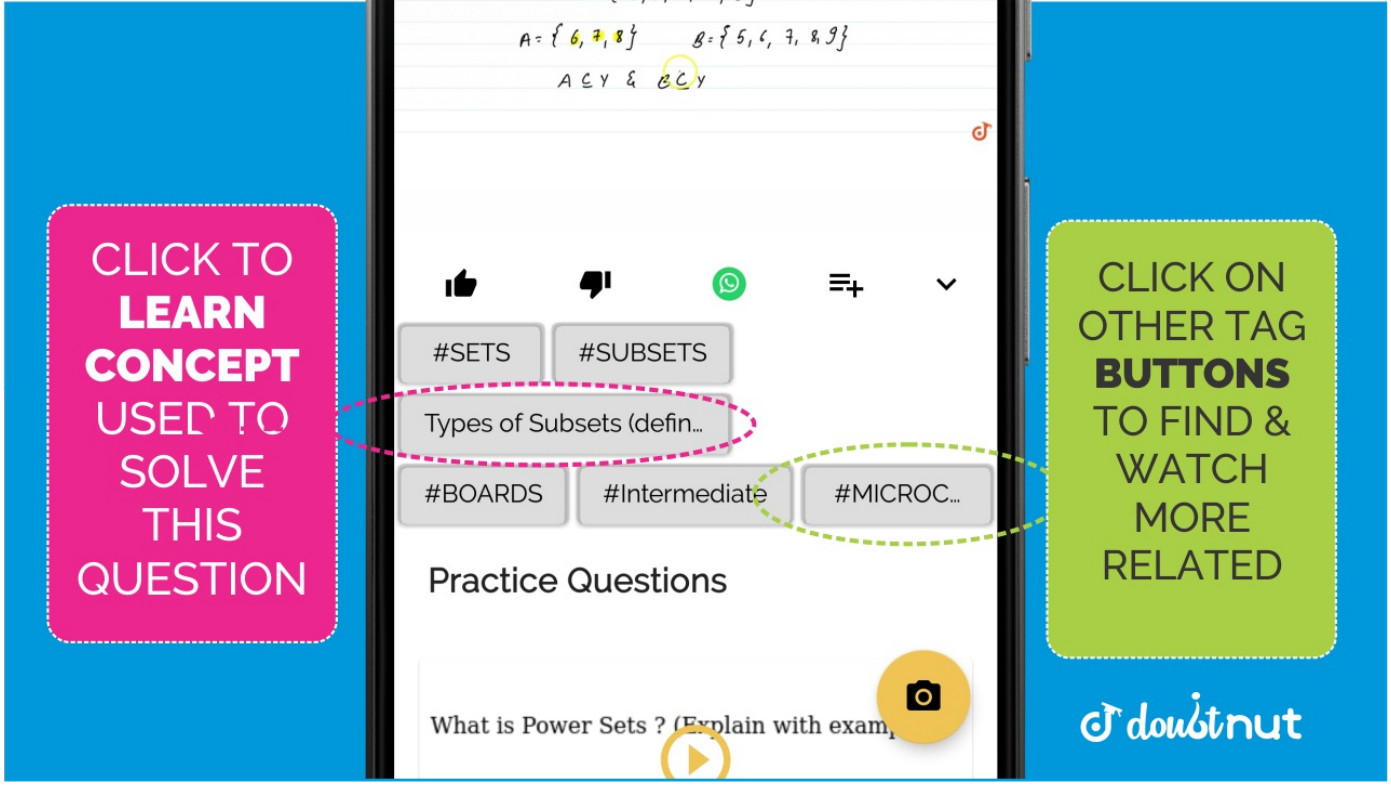

68	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || DELHI** Using elementary operations, find the inverse of the following matrix: `(-1 1 2 1 2 3 3 1 1)` Watch Free Video Solution on Doubtnut
69	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** If the binary operation * on the set Z of integers is defined by `a\ *\ b=a+b\ -\ 5` , then write the identity element for the operation * in Z. Watch Free Video Solution on Doubtnut
70	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Write the value of `"cot"(tan^(-1)a+cot^(-1)a)dot` Watch Free Video Solution on Doubtnut
71	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** If `A` is a square matrix such that `A^2=A` , then write the value of `(I+A)^2-3Adot` Watch Free Video Solution on Doubtnut
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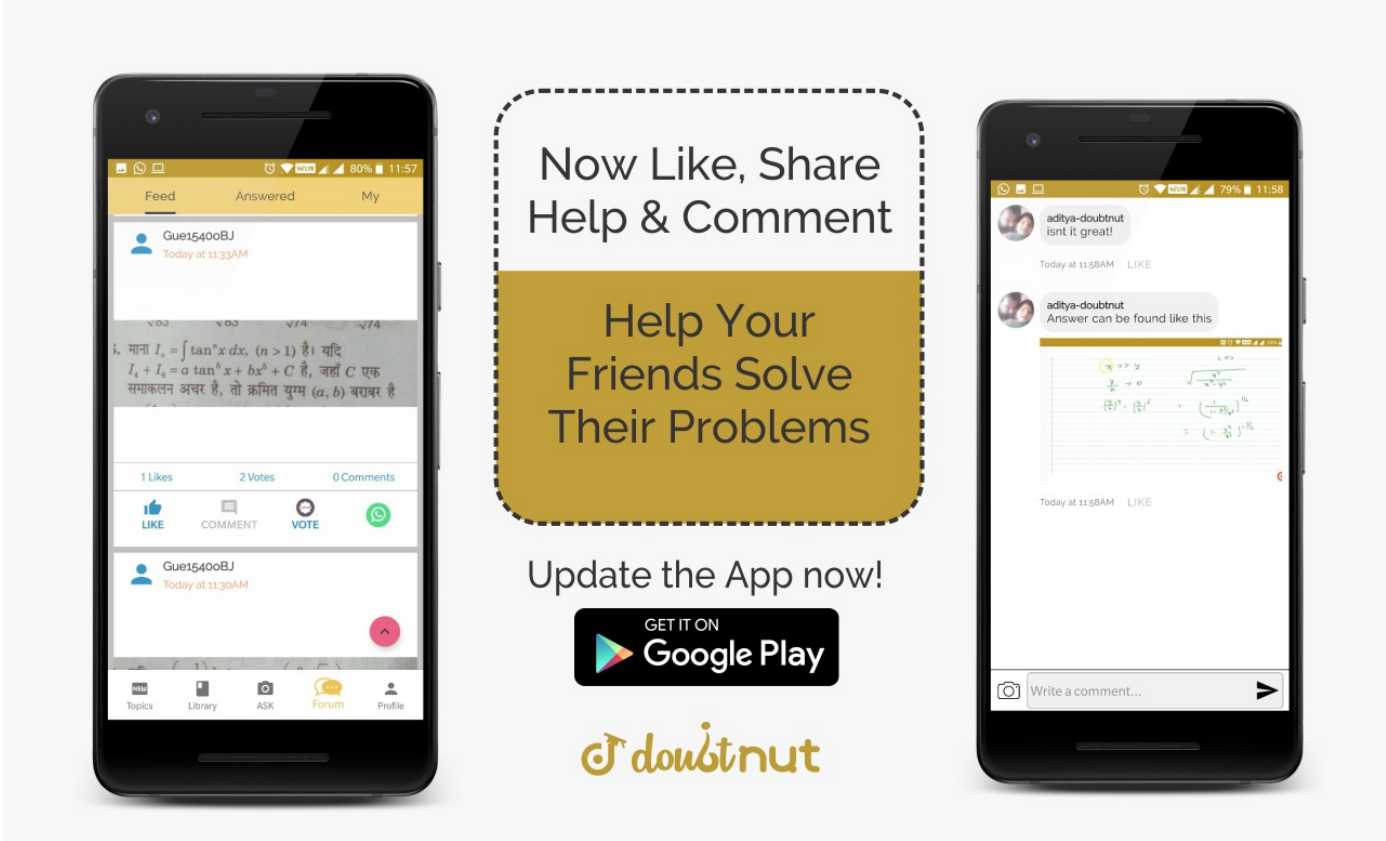

72	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** If `x[2 3]+y\ [-1 1]=[10 5],` write the value of `xdot` Watch Free Video Solution on Doubtnut
73	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Write the value of the following determinant: `|102 18 36 1 3 4 17 3 6|` Watch Free Video Solution on Doubtnut
74	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** If `int((x-1)/(x^2))e^x dx=f(x)e^x+c ,` then write the value of `f(x)dot` Watch Free Video Solution on Doubtnut
75	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** If `int_0^a3x^2dx=8,\ ` write the value of `'' a^(prime)dot` Watch Free Video Solution on Doubtnut
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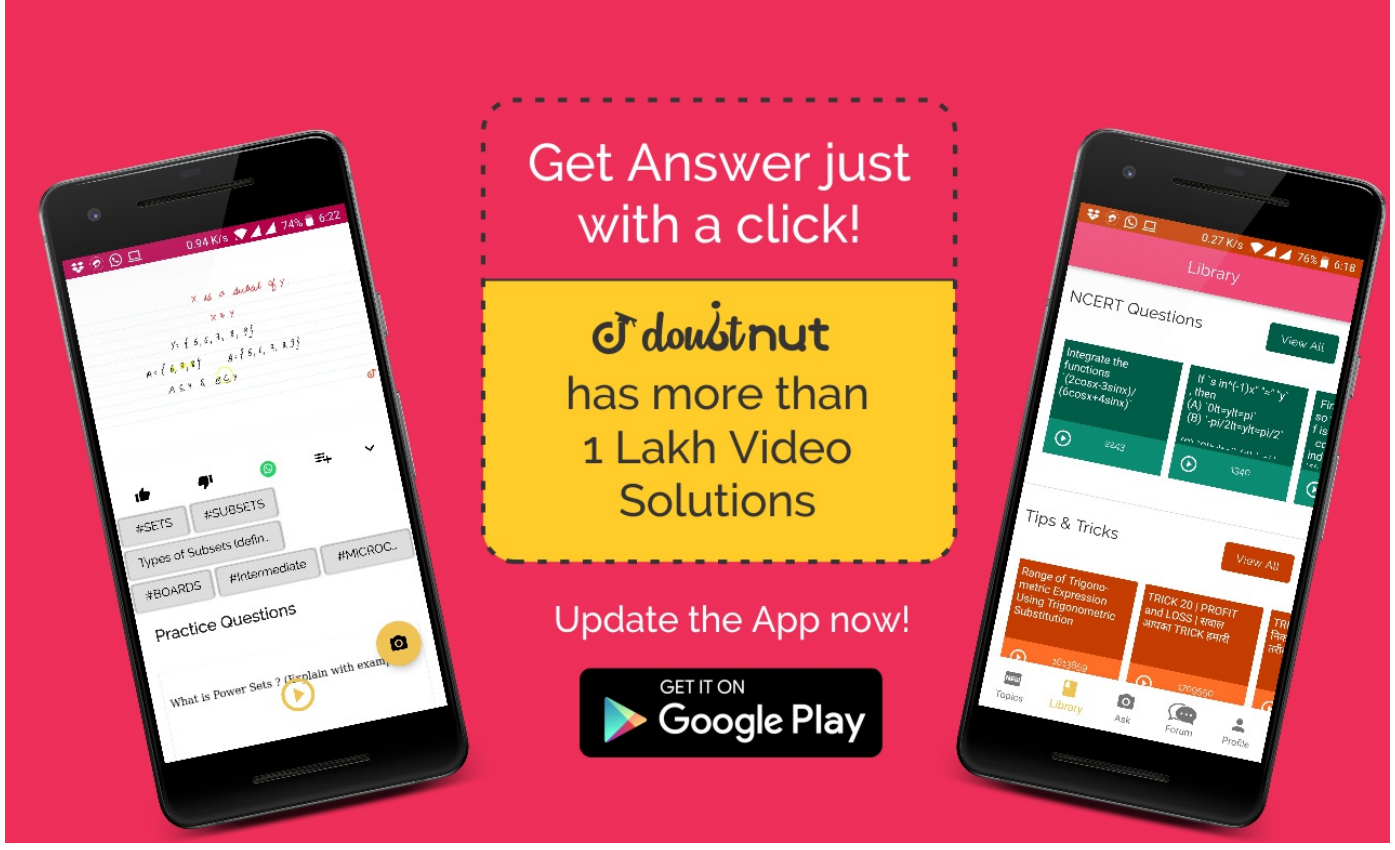

76	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Write the value of `( hat ixx hat j)dot hat k+( hat jxx hat k)dot\ hati` Watch Free Video Solution on Doubtnut
77	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Write the value of the are of the parallelogram determined by the vectors `2 hat i` and `3 hat j` . Watch Free Video Solution on Doubtnut
78	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Write the direction cosines of a line parallel to z-axis. Watch Free Video Solution on Doubtnut
79	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** If `f(x)=(4x+3)/(6x-4),\ x\ !=2/3,` show that `fof(x)=x` for all `x!=2/3dot` What is the inverse of `f?` Watch Free Video Solution on Doubtnut
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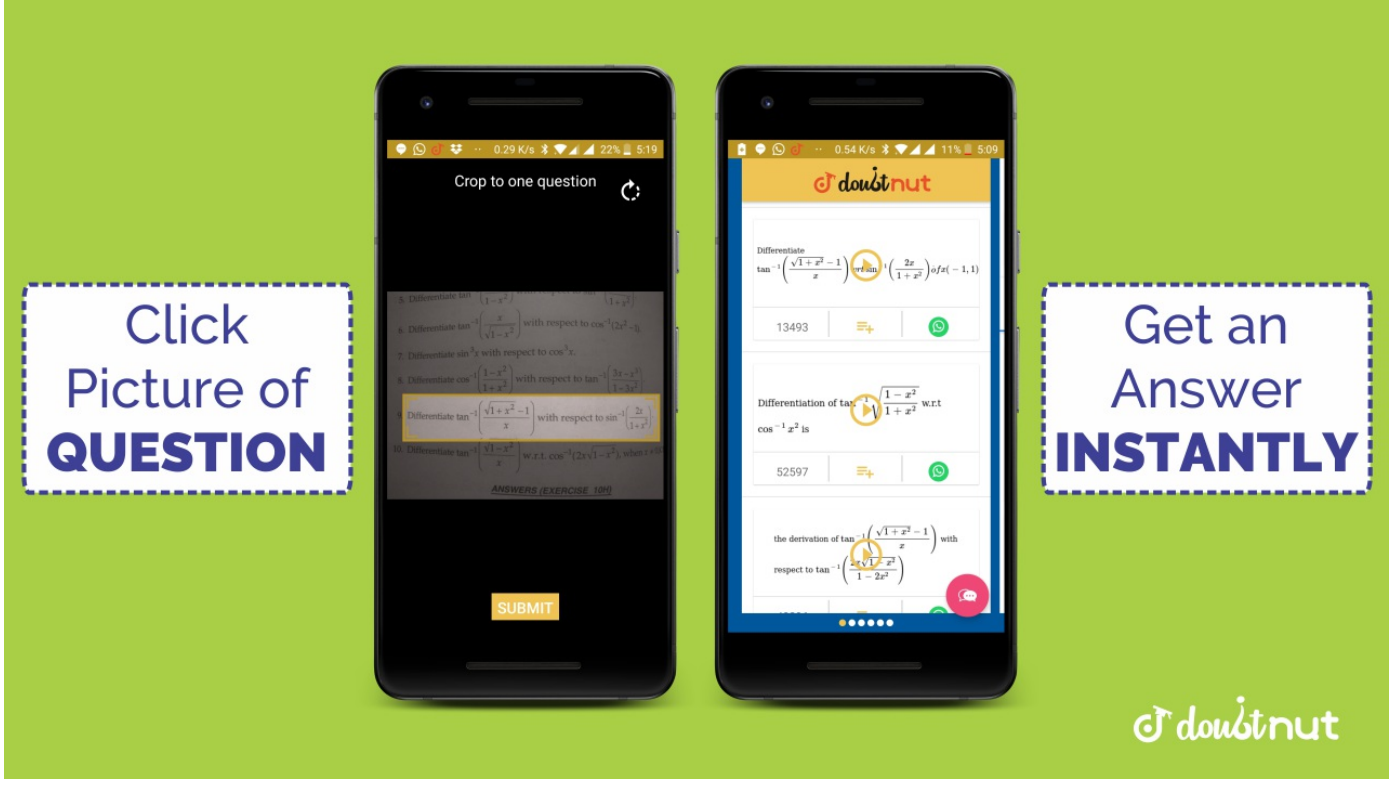

80	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Prove that: `sin^(-1)((63)/(65))=sin^(-1)(5/(13))+cos^(-1)(3/5)` Watch Free Video Solution on Doubtnut
81	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Solve for `x :` `2tan^(-1)(sinx)=tan^(-1)(2secx),\ x!=pi/2` Watch Free Video Solution on Doubtnut
82	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Using properties of determinants, prove that `|a a+b a+b+c2a3a+2b4a+3b+2c3a6a+3b 10 a+6b+3c|=a^3` Watch Free Video Solution on Doubtnut
83	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** If `x^m y^n=(x+y)^(m+n),` prove that `(dy)/(dx)=y/x` . Watch Free Video Solution on Doubtnut

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84	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** If `y=e^a cos^((-1)x)\ ,\ -1\ lt=xlt=1,` show that `(1-x^2)(d^2y)/(dx^2)-\ x(dy)/(dx)-\ a^2y=0` Watch Free Video Solution on Doubtnut
85	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** If `x\ sqrt(1+y)+y\ sqrt(1+x\ )\ 0,\ -1 Watch Free Video Solution on Doubtnut
86	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Show that `y=log(1+x)-(2x)/(2+x),\ x >-1` is an increasing function of `x` throughout its domain. Watch Free Video Solution on Doubtnut
87	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Find the equation of the normal at the point `(a m^2, a m^3)` for the curve `a y^2=x^3dot` Watch Free Video Solution on Doubtnut

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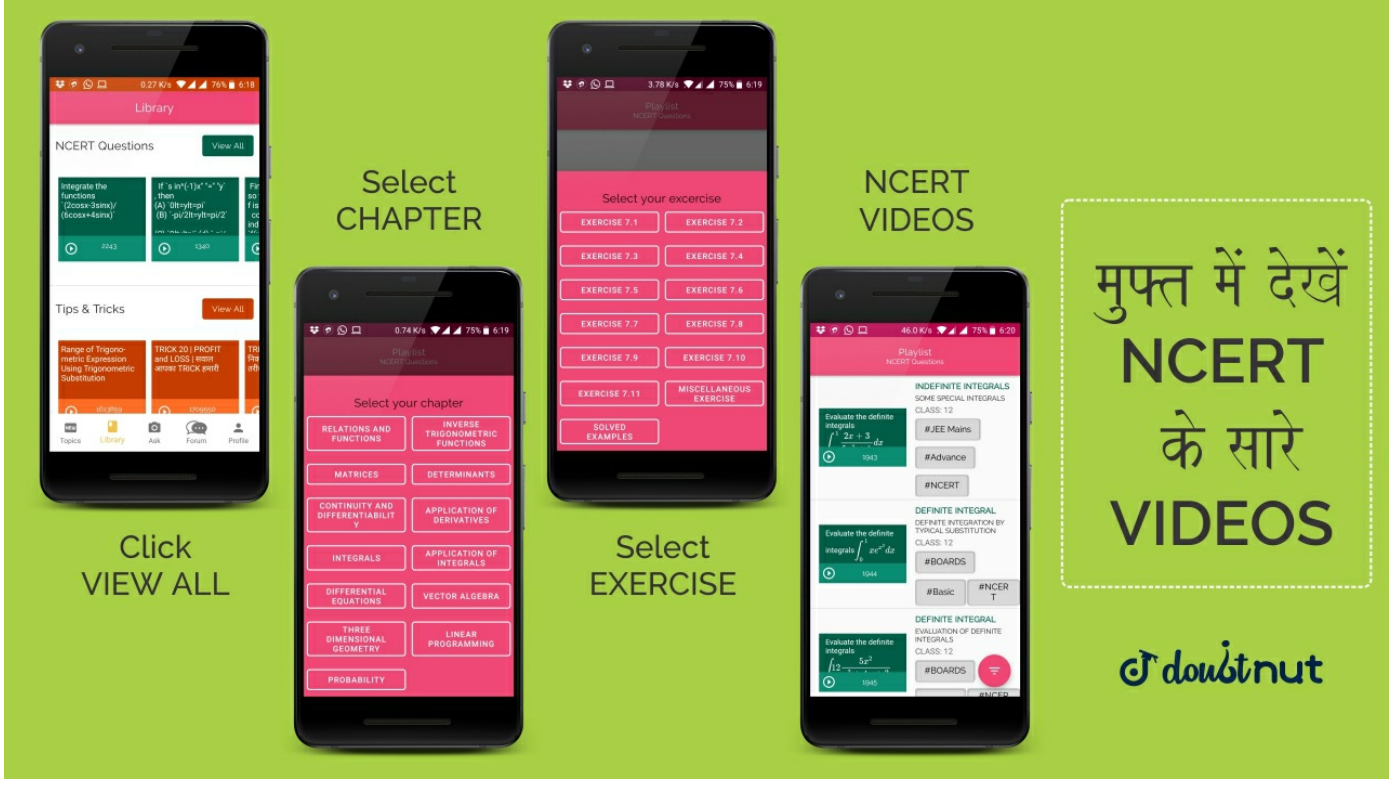

88	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Evaluate: `intx^2tan^(-1)x\ dx` Watch Free Video Solution on Doubtnut
89	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Evaluate: `int(3x-1)/((x+2)^2)\ dx` Watch Free Video Solution on Doubtnut
90	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Solve the following differential equation: `[(e^(-2\ sqrt(x)))/(sqrt(x))-y/(sqrt(x))](dx)/(dy)=1,\ x\ !=0` Watch Free Video Solution on Doubtnut
91	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Solve the following differential equation: `3e^xtany\ dx+(2-e^x)sec^2y\ dy=0,` given that when `x=0,\ y=pi/4dot` Watch Free Video Solution on Doubtnut
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92	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** If ` vecalpha=3 hat i+4 hat j+5 hat k` and ` vecbeta=2 hat i+ hat j-\ 4 hat k ,` then express ` vecbeta` in the form ` vecbeta_1+ vecbeta_2,` where ` vecbeta_1\ ` is parallel to ` vecalpha` and ` vecbeta` is perpendicular to ` vecalpha` . Watch Free Video Solution on Doubtnut
93	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Find the vector and cartesian equations of the line passing through the point `P\ (1,\ 2,\ 3)\ ` and parallel to the planes ` vec rdot( hat i-\ hat j+2 hat k)=5\ ` and ` vec rdot(3 hat i+ hat j+ hat k)=6.` Watch Free Video Solution on Doubtnut
94	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** A pair of dice is thrown 4 times. If getting a doublet is considered a success, find the probability distribution of the number of successes and hence find its mean. Watch Free Video Solution on Doubtnut
95	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Using matrices, solve the following system of equations: `x\ -\ y+z=4;\ 2x+y\ -\ 3z=0;\ x+y+z=2` Watch Free Video Solution on Doubtnut

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96	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** If `A^(-1) =[(3,-1,1),(-15,6,-5),(5,-2,2)]` and `B = [(1,2,-2), (-1,3,0), (0,-2,1)]` find `(AB)^(-1)` Watch Free Video Solution on Doubtnut
97	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Show that the altitude of the right circular cone of maximum volume that can be inscribed in a sphere of radius `R` is `(4R)/3dot` Watch Free Video Solution on Doubtnut
98	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Find the area of the region in the first quadrant enclosed by `x-a xi s ,` the line `x=sqrt(3)\ y` and the circle `x^2+y^2=4.` Watch Free Video Solution on Doubtnut
99	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Evaluate: `int_1^3(x^2+x)dx` Watch Free Video Solution on Doubtnut

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100	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Evaluate: `int_0^(pi/4)(cos^2x)/(cos^2x+4sin^2x)dx\ ` Watch Free Video Solution on Doubtnut
101	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** Find the vector equation of the plane passing through the points `(2,\ 1,\ 1)\ a n d\ (1,\ 3,\ 4)` and perpendicular to the plane `x\ -\ 2y+4z=10` . Also show that the plane thus obtained contains the line ` vec r=- hat i+3 hat j+4 hat k+lambda\ (3 hat i-2 hat j-\ 5 hat k)dot` Watch Free Video Solution on Doubtnut
102	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** A company produces soft drinks that has a contract which requires that a minimum of 80 units of the chemical A and 60 units of the chemical B go into each bottle of the drink. The chemicals are available in prepared mix packets from two different suppliers. Supplier S had a packet of mix of 4 units of A and 2 units of B that costs Rs.10. The supplier T has a packet of mix of 1 unit of A and 1 unit of B costs Rs.4. How many packets of mixed from S and T should the company purchase to honour the contract requirement and yet minimize cost? Make a LPP and solve graphically. Watch Free Video Solution on Doubtnut
103	**CLASS 12 BOARDS MATHS SOLUTIONS - 2012 || FOREIGN** In a certain college, 4% of boys and 1% of girls are taller than 1.75 metres. Furthermore, 60% of the students in the college are girls. A student is selected at random from the college and is found to be taller than 1.75 metres. Find the probability that the selected student is a girl. Watch Free Video Solution on Doubtnut
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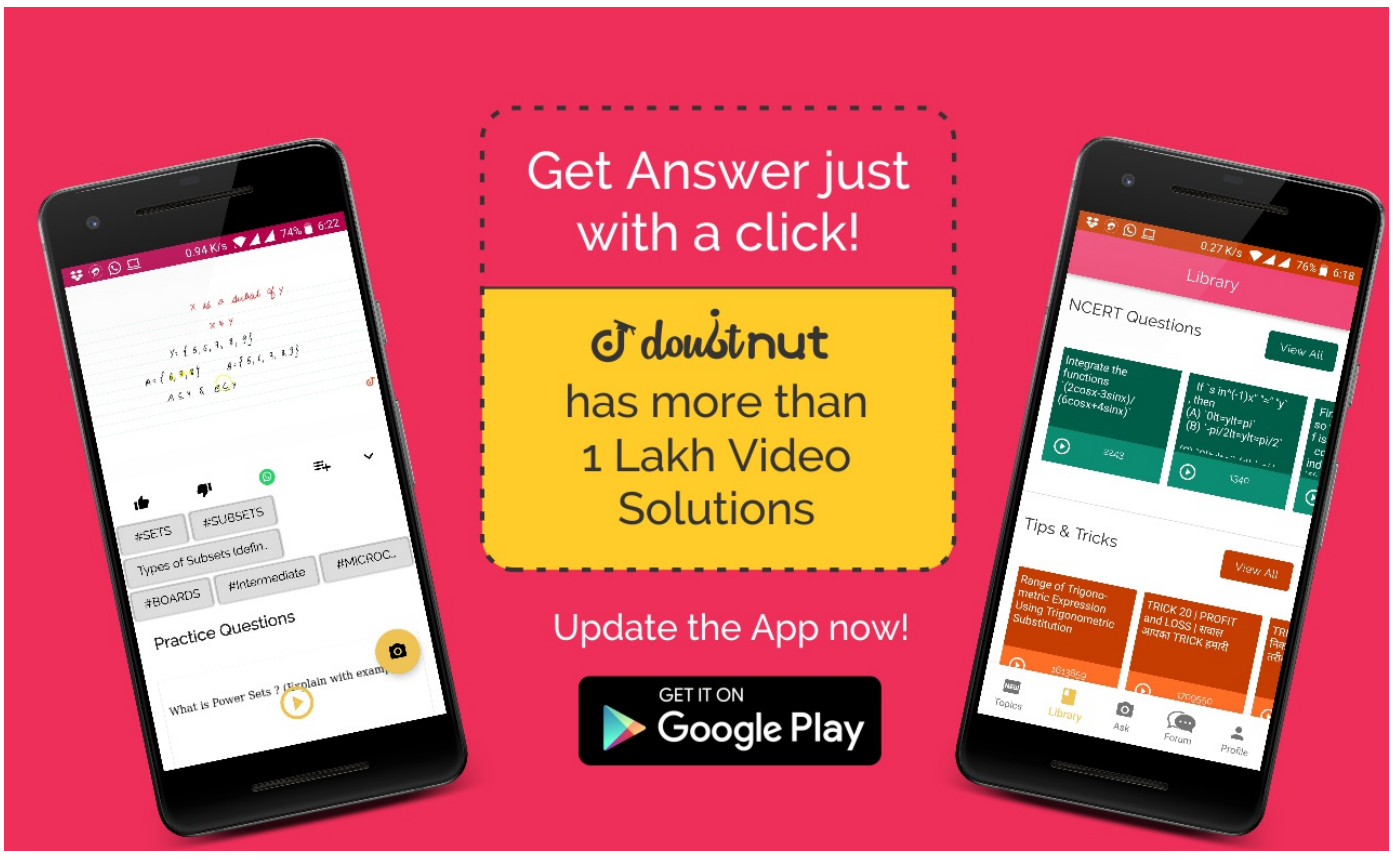

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