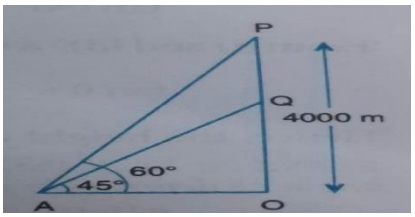
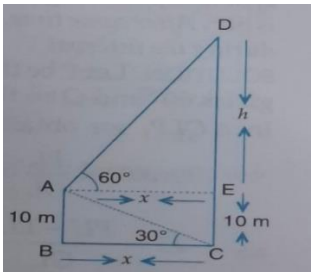
KENDRIYA VIDYALAYA SANGATHAN, ERNAKULAM REGION

PREBOARD EXAM- MATHEMATICS BASIC

MARKING SCHEME		
	SECTION-A(20 × 1 = 20)	Marks
1	(d) 81	1
2	(a) 9	1
3	(c) (3,4)	1
4	(d) 16:9	1
5	(c) no real roots	1
6	(b) y-axis	1
7	(c) 3	1
8	(b) 3	1
9	(a) x y	1
10	(c) similar but not congruent	1
11	(a) 3	1
12	(d) $9\pi\ cm^2$	1
13	(b)20^0	1
14	(b) 3 cm	1
15	(c) 5	1
16	(d)10	1
17	(b) $10a^2$	1
18	(c) <B =<D	1
19	(a)Assertion and reason are true but reason is the correct explanation of assertion	1
20	(a)Assertion and reason are true but reason is the correct explanation of assertion	1
	SECTION-B(5× 2 = 10)	Marks
21	Need the least number divisible by both 40 and 48. $40=2^3$ x5; $48=2^4$x 3 LCM=2^4 ×3×5=240 **Answer: 240 book**	½ +1/2 +1
22	Cos $45^0 = 1/\sqrt{2}$, tan $30^0 = 1/\sqrt{3}$, sin $60^0 = \sqrt{3}/2$ Substitute and solve to get $\sqrt{6}/5$ OR Cos(A- B) = $\sqrt{3}/2$ = cos 30^0, A -B = 30^0 Sin(A+B) = 1 = sin 90^0 , A+B = 90^0 A = 60^0 B = 30^0	1 1 ½ ½ 1
23	.PA = PC + CA , but CA = CQ Therefore, PA = PC + CQ = 15 Similarly, PB = PD+DQ = 15	½ ½

	Perimeter, triangle PCD = PC+CQ+DQ+PA = 15+15 = 30 cm OR If larger chord is APB, 'P' is a point which a touches the smaller circle $AP^2 = 225 - 81 = 144$, AP = 12 Larger chord (APB) = 2x 12 = 24 cm	1 1 ½ 1/2
24	D= 0 $b^2 - 4ac = 0$ $k^2 - 4x2x3 = 0$ $k = \pm 2\sqrt{6}$	½ 1 1/2
25	Sum of roots: $\alpha+3\alpha=-12$, $\alpha = -3$ Other root:−9 Product: $\alpha(3\alpha)=3\alpha^2 =3x9 =27$ But product of roots =−k, -k=27 or k= -27	 1 1
	SECTION-C (6× 3 = 18)	Marks
26	Correct proof.	3
27	Triangle POA congruent to triangle COA by SSS <PAO = <OAC= x (cpct) Similarly, <QBO = <CBO = y $2x+2y = 180^0$ (consecutive interiors <'s) $x + y = 90^0$ $x + y + <AOB = 180^0$ so, $<AOB = 90^0$	 1 1 1
28	<u>LHS</u> $Sin^2A+cosec^2A+2sinAcosecA+cos^2A+sec^{2A}+2cosAsecA$ $= 5 + cosec^2A+sec^2A$ $[sin^2A+cos^2A = 1]$ $= 7 + tan^2A+cot^2A$ = RHS [$cosec^2A = 1+tan^2A$ & $sec^2A = 1+cot^2A$	 1 1 1
29	(i) AB=AC hence <B=<C isosceles triangle <D=<F each 90^0 $\Delta ABD \sim \Delta CEF$ by AA similarity **OR** $DE \parallel AC$ hence $\frac{BE}{EC}=\frac{BD}{DA}$. and $DF \parallel AE$ hence $\frac{BF}{FE}=\frac{BD}{DA}$. So $\frac{BF}{FE}=\frac{BE}{EC}$.	1 1 1 1 1 1

30	Let starting monthly salary be 'a' and annual increment be' d'. After 4 years: a+4d=15000 After 10 years: a+10d=18000 Subtract: d=500 (**Annual increment)** a+4(500)=15000 ; a=13000(**Starting salary)**	 ½ ½ 1 1
31	Factor:(2x+3)(x-2) So zeros are x=2, x=−3/2 Verification α+β=2−3/2=1/2=-b/a αβ=2(−3/2)=−3=c/a	1 1 1
	SECTION-D (4× 5 = 20)	Marks
32	Given, to prove, construction, figure Correct proof EC= 1.8cm	1 2 2
33	Correct fig  $Tan60^0$ = OP/OA OA = $4000/\sqrt{3}$ $Tan\ 45^0$ = OP/OA OA = OQ = $4000/\sqrt{3}$ Vertical distance between aeroplane = PQ = OP – OQ = $4000 - 4000/\sqrt{3} = 4000(\sqrt{3} - 1)/\sqrt{3}$ = *1690.53m* **OR** $Tan60^0$ = h/k => h = $\sqrt{3}x$ $Tan\ 30^0$ = 10/x => x = $10\sqrt{3}$ Distance of hill from ship = $10\sqrt{3}$ m h=$10\sqrt{3}$ x $\sqrt{3}$=30m Height of the hill = 10 +30 = 40m figure	1 1.5 1.5 1 1 1 1 1 1

		
34	Let fraction be x/y ½ 3x/(y - 3) = 18/11, -> 11x = 6y – 18 1 ½ (x + 8)/ 2y = 2/5, -> 5x + 40 = 4y 1 ½ x = 12 & y = 25 1 fraction 12/25 ½ **OR** If speed is x km/hr and time taken y hours ½ Distance covered = x y 1 ½ So, x y = (x + 10) (y - 2) = - 2x + 10y = 20 1 ½ And x y = (x - 10) (y + 3) = 3x - 10y = 30 1 x = 50 & y = 12 ½ Distance = 50 x12 = 600 km	
35	Total shaded angle: 35∘+50∘+95∘=180 Area of shaded region =180/360π(5)^2 =39.25cm^2	1 2 +2
	SECTION-E (3 × 4 = 12) CASE STUDY	Marks
36	R=(200,400) and S=(−200,400). A=400^2 =160000 **OR** PR=400$\sqrt{2}$ Ratio =1:1	1 2 1
37	(i) BD=h m. (ii)BC=h$\sqrt{2}$ m (iii)Height CE= 54.6+40=94.6 m OR AE=50 m	1 1 2
38	(i) V=30(3)(15) =1350 cm^3 (ii) TSA=2(lb+bh+hl)= =2(15×8+8×5+5×15)= 470 cm^2 OR No. of packets= 1350/600 =2.25, 2packets (iii) Milk cup hold=V=πr^2 h =550cm^3	1 2 1