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N. Vinaykumar Reddy	Sol:		Sol: $1 + 1 - x - y + x + y$	a) 300 m b) 250 m
CONTRO-			Sol: $\frac{1}{x+y} + \frac{1}{x-y} = \frac{x-y+x+y}{x^2-y^2}$	c) 400 m d) 200 m
Director, IACE,			$=\frac{2x}{x^2-y^2}$	Sol: Train can pass an electrical pole
Hyderabad.	(E	RRB		$= 20 \sec 1.16$
1015115319911111111			Ans: b 14. A man rows to a place 60 km	Train can pass a platform = 45 sec Let the speed of train = x m/s
Model Questions	ВС	Mathematics	distant and back in 13 hours 30	ATQ,
	$EB = \frac{1}{2}$ $AB = 3 \text{ cm}$	Special	minutes. He finds that he can row	$20 \times x = 45 \times x - 250$
1. Simplify	$FC = \frac{1}{2}$ $CD = 4 \text{ cm}$	Also useful for	5 km with the stream in the same	45x - 20x = 250
$\sqrt[4]{0.0625} + \sqrt[3]{0.008} + \sqrt{0.09} - 1$	$OE = \sqrt{OB^2 - EB^2} = \sqrt{5^2 - 3^2} = 4cm$	Other Competitive Exams	time as he can row 4 km against	25x = 250
3√62.55√32			the stream. Find the rate of the	x = 10 m/s So, the length of train
a) ¹ / ₂ b) 2.4 c) 1.25 d) 0	$OF = \sqrt{OC^2 - FC^2} = \sqrt{5^2 - 4^2} = 3 cm$		stream. a) 8 km/hr b) $\frac{1}{2}$ km/hr	$= 20 \times 10 = 200 \text{ m}$
Sol:	So, $EF = 4 - 3 = 1$ cm	day. The ratio of their efficiencies	c) 10 km/hr d) 1 km/hr	Ans: d
$\frac{\sqrt[4]{0.0625} + \sqrt[3]{0.008} + \sqrt{0.09} - 1}{\sqrt[3]{0.008} + \sqrt{0.09} - 1}$	Ans: a	of work is	Sol: Ratio of upstream and down-	19. If $\frac{x}{3} + \frac{3}{x} = 1$, then the value of x^3
3√62.5 5√32	5. If the angles of a triangle are in	a) 1 : 2 : 4 b) 2 : 1 : 4	stream = $4:5$	
$4(0.05)^4 + 3(0.2)^3 + \sqrt{(0.3)^2} - 1$	the ratio 2 : 3 : 5, then the measure of the least angle of the	c) 4 : 2 : 1 d) 2 : 4 : 1 Sol:	Distance covered = 60 km Time taken = $13 \text{ hours } 30$	$\begin{array}{c} 1s \\ a) -27 b) \ 0 c) \ 27 d) \ 1 \end{array}$
	triangle is:	Ratio of efficiency of A and B	minutes	Sol: $\frac{x}{x} + \frac{3}{x} = 1$
$\sqrt[3]{62.5} \sqrt[5]{(2)^5}$	a) 20° b) 90°	= 1 : 2	$\frac{60}{100} + \frac{60}{100} = 13\frac{1}{100}$	$\frac{1}{3} + \frac{1}{x} - 1$
$=\frac{0.5+0.2+0.3-1}{\sqrt[3]{625.5}\ 2}=0$ Ans: d	c) 18° d) 36°	Ratio of efficiency of B and C	4x 5x 2	$x^2 + 9 = 3x$
		= 1:2	$\frac{15+12}{x} = \frac{27}{2}$	$x^2 - 3x + 9 = 0$ Modulating has used 2 and hot hot is dec
2. A man rows 12 km in 5 hours against the stream, the speed of		So, ratio of efficiency of A, B and $C = 1 : 2 : 4$	x = 2	Multiply by $x + 3$ on both sides ($x + 3$) ($x^2 - 3 \times x + 3^2$) = 0
current being 4 kmph. What time		Ans: a	So, the rate of stream	$ \begin{array}{c} (x + 3) (x - 3 \times x + 3) = 0 \\ x^3 + 3^3 = 0 \end{array} $
will be taken by him to row 15	= 180 $=$ 30	10. The average marks of 14 students	$=\frac{5 2-4 2}{2} = 1$ km/hr Ans: d	$x^3 = -27$
km with the stream	6. The value of $\sec^4 A(1 - \sin^4 A) -$	was 71. It was later found that the	2	Ans: a
a) 1 hour 27 $\frac{7}{13}$ min	$2 \tan^2 A is$	marks of one of the students has	15. The LCM of two numbers is 12 times their LICE. The sum of the	20. A man buys a TV at 16000. He
7	a) $\frac{1}{2}$ b) 0 c) 2 d) 1 Sol: Sec ⁴ A (1-sin ⁴ A) -2 tan ² A	been wrongly entered as 42 instead of 56 and of another as 74	times their HCF. The sum of the HCF and LCM is 403. If one of	pays 4000 at once and the rest after 15 months on which he is
b) 1 hour 24 $\frac{7}{13}$ min		instead of 32. What is the correct	the number is 93, then the other	charged a simple interest at the
c) 1 hour 25 $\frac{7}{13}$ min	$=\frac{(1+\sin^2 A)(1-\sin^2 A)}{\cos^4 A} -2 \tan^2 A$	average ?	is -	rate of 12% per year. The total
15			a) 116 b) 124	amount he pays for the TV is -
d) 1 hour 26 $\frac{7}{13}$ min	$= \sec^{2} A + \tan^{2} A - 2 \tan^{2} A = 1$ Ans: d	Sol: Correct average	c) 112 d) 120	a) 17800 b) 16800 c) 18200 d) 17200
Sol: A man rows 12 kms in 5 hours		U U	Sol: $\frac{\text{LCM}}{\text{HCF}} = 12$	<i>Sol:</i> Listed price = 16000
against the stream, so upstream	bananas for 250. Out of these 30	$=\frac{14 71 + (56 - 42) + (32 - 74)}{14}$	LCM = 12 HCF	Amount paid = 4000
speed = $\frac{12}{5}$ = 2.4 km/hr	bananas were rotten and could	$=\frac{14}{14} \frac{71+14-42}{14} = 71+1-3=69$	12 LCM + HCF = 403	Amount due = $(16000 - 4000)$
5	not be sold. At what rate per		HCF = 31	= 12000
Speed of current = 4 km/hr Speed of man	dozen should he sell the remaining bananas to make a	Ans: d 11. The value of $(\cos 0^\circ + \sin 45^\circ +$	$N_1 \times N_2 = HCF \times LCM$ 93 × N ₂ = 31 × (31 × 12)	Rate of S.I. = 12% Time = 15 months = 1.25 years
= 4 + 2.4 = 6.4 km/hr	profit of 20% ?	$\sin 30^{\circ}$ (sin 90°- cos 45°	$N_2 = 124$	
So, time taken to row 15 kms		$+\cos 60^{\circ}$	Ans: b	$SI = \frac{12000 12 1.25}{100} = 1800$
downstream _	Sol:	a) $\frac{7}{4}$ b) $\frac{5}{4}$ c) $\frac{3}{4}$ d) $\frac{3}{2}$	16. On what sum of money will the	Amount paid by man after 15
$= 1 \text{ hour } 26\frac{7}{13} \text{ min} \qquad Ans:d$	Cost price of 40 dogzen bananas = 250	Sol: $(\cos 0^\circ + \sin 45^\circ + \sin 30^\circ)$ (sin	difference between simple	months = $(12000 + 1800) = 13800$
3. If 5 tan $A = 4$, then the value of		$90^{\circ} - \cos 45^{\circ} + \cos 60^{\circ}$	interest and compound interest for 2 years at 5% per annum be	= (12000 + 1800) = 13800 Total amount = 13800 +4000
$\frac{5\sin A - 3\cos A}{\sin A + 2\cos A}$ is	of per dozen bananas	$= \left(1 + \frac{1}{\sqrt{2}} + \frac{1}{2}\right) \left(1 - \frac{1}{\sqrt{2}} + \frac{1}{2}\right)$	equal to 63 ?	= 17800
	$=\frac{250}{2}=\frac{20}{2}$	$= \begin{pmatrix} 1 & \sqrt{2} & 2 \\ \sqrt{2} & 2 \end{pmatrix} \begin{pmatrix} 1 & \sqrt{2} & 2 \end{pmatrix}$	a) 24,800 b) 25,200	Ans: a
a) $\frac{9}{14}$ b) $\frac{5}{6}$ c) $\frac{5}{14}$ d) $\frac{7}{9}$	37.5 3	(3 1)(3 1) 9 1 7	c) 25,500 d) 24,600	21. A and B can do a piece of work
<i>Sol:</i> C	Profit percent = 20% 20 120	$\left(\frac{3}{2} + \frac{1}{\sqrt{2}}\right)\left(\frac{3}{2} - \frac{1}{\sqrt{2}}\right) = \frac{9}{4} - \frac{1}{2} = \frac{7}{4}$	Sol: Difference of Interest	in 15 days. B and C can do the same work in 10 days and A and
√41	Selling price $=\frac{20}{3} \frac{120}{100} = 8$	Ans: a	= Principal × $\left(\frac{\text{Rate}}{100}\right)^2$	C can do the same in 12 days.
	Ans: c	12. If $2\sin^2 \theta - 3\sin\theta + 1 = 0$, θ being		Time taken by A, B and C
B 5 A	8. 15 men can finish a work in 20	positive acute angle, then the	$63 = \text{Principal} \times \left(\frac{5}{100}\right)^2$	together to do the Job is
$5 \tan A = 4$	days, however it takes 24 women to finish it in 20 days. If 10 men	value of θ are a) 30°, 90° b) 60°, 55°	$Principal = 63 \times 4 \times 100$	a) 8 days b) 9 days c) 5 days d) 4 days
Δ	and 8 women undertake to	a) 50° , 90° b) 60° , 53° c) 60° , 45° d) 45° , 50°	$Principal = 05 \times 4 \times 100$ $Principal = 25200$	Sol: $A + B$ $15 - 5$
$\operatorname{Tan} A = \frac{4}{5}$	complete the work, then they will	Sol: $2\sin^2\theta - 3\sin\theta + 1 = 0$	Ans:b	
$5\sin A - 3\cos A$	take -	$2\sin^2\theta - 2\sin\theta - \sin\theta + 1 = 0$	17. If $\sin\theta + \cos\theta = \sqrt{2} \sin (90^\circ - \theta)$	B + C $10 - 60 - 6$
$\sin A + 2\cos A$	a) 20 days b) 30 days	$2 \sin\theta (\sin\theta - 1) - 1(\sin\theta - 1)$ $\sin\theta - 1 - 0; \qquad 2 \sin\theta - 1 - 0$	then $\cot\theta$ is equal to :	C + A $12 - 5$
$=\frac{5}{\sqrt{41}}\frac{4}{\sqrt{41}}-3\frac{5}{\sqrt{41}}=\frac{20-15}{5}=\frac{5}{5}$	c) 10 days d) 15 days <i>Sol:</i>	$\sin \theta - 1 = 0;$ $2 \sin \theta - 1 = 0$ $\sin \theta = 1;$ $2 \sin \theta = 1$	a) $\sqrt{2} + 1$ b) 0 c) $\sqrt{2} - 1$ d) $\sqrt{2}$	$\frac{C+A}{2(A+B+C)} \begin{array}{c} 12 \swarrow & 3 \\ \hline 15 \end{array}$
$= \frac{4}{-4} + 2 = \frac{5}{-4} = \frac{1}{4} + 10 = \frac{1}{14}$	$15 \text{ men} \times 20 \text{ days} = 24 \text{ women} \times 15 \text{ men} \times 10 \text{ days} = 24 \text{ women} \times 10 \text{ days} = 24 \text{ women} \times 10 \text{ days} = 10 \text{ days} =$	$\sin\theta = \sin 90^\circ$; $\sin \theta = \frac{1}{2} = \sin 30^\circ$	Sol: $\sin\theta + \cos\theta = \sqrt{2} \sin (90^\circ - \theta)$	
$\sqrt{41}$ $\sqrt{41}$	24 days	$\theta = 90^{\circ}; \qquad \theta = 30^{\circ}$	$\sin \theta + \cos \theta = \sqrt{2} \cos \theta$	Let total units of work $= 60$
Ans:c	5 men = 8 women	$\theta = 30^\circ \text{ or } 90^\circ$	$\frac{\cos\theta}{\sin\theta} = \frac{1}{\sqrt{2}-1}$	Work done by $A + B + C$ in a day
4. The length of two parallel chords of a circle of radius 5cm are 6 cm		Ans: a 1 1	$\int \frac{1}{\sqrt{2}} \int \frac{1}{\sqrt{2}} \frac{1}{\sqrt{2}} = \sqrt{2} + 1$ Ans: a	$=\frac{15}{2}$
and 8cm in the same side of the	L	13. The sum of $\frac{1}{x+y}$ and $\frac{1}{x-y}$ is	18. A train passes an electrical pole	So, time taken by A, B and C
centre. The distance between		a) $\frac{2y}{2}$ b) $\frac{2x}{2}$	in 20 seconds and passes a	together to do the job
them is	9. A can do half of a piece of work	a) $\frac{2y}{x^2 - y^2}$ b) $\frac{2x}{x^2 - y^2}$	platform 250m long in 45	$=\frac{60}{15} = 8$ days
a) 1 cm b) 2 cm c) 3 cm d) 1 5 cm	in 1 day, whereas B can do full. B can do half the work as C in 1	c) $\frac{-2y}{x^2 - y^2}$ d) $\frac{2x}{y^2 - x^2}$	seconds. Find the length of the train.?	
c) 3 cm d) 1.5 cm	can do hall die work as C III I		ua111. :	2 Ans: a

Find the rate of the stream?

N. Vinaykumar Reddy	Sol:		Sol: $\frac{1}{x+y} + \frac{1}{x-y} = \frac{x-y+x+y}{x^2-y^2}$	a) 300 m b) 250 m
Carter				c) 400 m d) 200 m
Director, IACE,			$=\frac{2x}{x^2-y^2}$	<i>Sol:</i> Train can pass an electrical pole
Hyderabad.	(E	RRB	$x^2 - y^2$	= 20 sec
Witten-AMMINI WIA			Ans: b	Train can pass a platform $= 45$ sec
	BC	Mathematics	14. A man rows to a place 60 km	Let the speed of train = $x m/s$
Model Questions			distant and back in 13 hours 30	ATQ,
1 Simplify	$EB = \frac{1}{2} AB = 3 cm$ FC = $\frac{1}{2} CD = 4 cm$	Special	minutes. He finds that he can row	$20 \times x = 45 \times x - 250 45x - 20x = 250$
1. Simplify		Also useful for	5 km with the stream in the same time as he can row 4 km against	43x - 20x = 250 25x = 250
$\frac{4}{0.0625} + \frac{3}{0.008} + \sqrt{0.09} - 1$	$OE = \sqrt{OB^2 - EB^2} = \sqrt{5^2 - 3^2} = 4cm$	Other Competitive Exams	the stream. Find the rate of the	x = 10 m/s
$\sqrt[3]{62.5\sqrt[5]{32}}$			stream.	So, the length of train
a) ¹ / ₂ b) 2.4 c) 1.25 d) 0	$OF = \sqrt{OC^2 - FC^2} = \sqrt{5^2 - 4^2} = 3 \text{ cm}$		a) 8 km/hr b) $\frac{1}{2}$ km/hr	$= 20 \times 10 = 200 \text{ m}$
Sol:	So, $EF = 4 - 3 = 1$ cm	day. The ratio of their efficiencies	c) 10 km/hr d) 1 km/hr	Ans: d
$4\sqrt{0.0625} + \sqrt[3]{0.008} + \sqrt{0.09} - 1$	Ans: a	of work is	Sol: Ratio of upstream and down-	19. If $\frac{x}{3} + \frac{3}{x} = 1$, then the value of x^3
3√62.5 5√32	5. If the angles of a triangle are in	a) 1 : 2 : 4 b) 2 : 1 : 4	stream = $4:5$	3 x, then the value of x
	the ratio 2 : 3 : 5, then the	c) 4 : 2 : 1 d) 2 : 4 : 1	Distance covered = 60 km	is
$\frac{4}{(0.05)^4} + \frac{3}{(0.2)^3} + \sqrt{(0.3)^2} - 1$	measure of the least angle of the	Sol:	Time taken = 13 hours 30	
$\sqrt[3]{62.5} \sqrt[5]{(2)^5}$	triangle is: (20°) (b) (00°)	Ratio of efficiency of A and B	minutes 60 60 1	Sol: $\frac{x}{3} + \frac{3}{x} = 1$
	a) 20° b) 90° c) 18° d) 36°	= 1 : 2 Ratio of efficiency of B and C	$\frac{60}{4x} + \frac{60}{5x} = 13\frac{1}{2}$	$x^{2} + 9 = 3x$
$=\frac{0.5+0.2+0.3-1}{\sqrt[3]{625.5}\ 2}=0$ Ans: d		= 1:2	$\frac{15+12}{27} = \frac{27}{27}$	$ x^{2} + 9 = 5x x^{2} - 3x + 9 = 0 $
2. A man rows 12 km in 5 hours	ATQ,	So, ratio of efficiency of A, B	$\frac{1}{x} = \frac{1}{2}$	Multiply by $x + 3$ on both sides
against the stream, the speed of		and $C = 1 : 2 : 4$	x = 2	$(x+3) (x^2 - 3 \times x + 3^2) = 0$
current being 4 kmph. What time		Ans: a	So, the rate of stream	$x^3 + 3^3 = 0$
will be taken by him to row 15	$=\frac{2}{2+3+5}$ 180°= 36° Ans: d	10. The average marks of 14 students	$=\frac{5 \ 2-4 \ 2}{2} = 1$ km/hr Ans: d	$x^3 = -27$
km with the stream	6. The value of $\sec^4 A(1 - \sin^4 A) -$	was 71. It was later found that the	2 - 1 Km/m Ans. u	Ans: a
a) 1 hour 27 $\frac{7}{13}$ min	$2 \tan^2 A$ is	marks of one of the students has	15. The LCM of two numbers is 12	20. A man buys a TV at 16000. He
13	a) $\frac{1}{2}$ b) 0 c) 2 d) 1	been wrongly entered as 42	times their HCF. The sum of the	pays 4000 at once and the rest
b) 1 hour 24 $\frac{7}{13}$ min	Sol: $\operatorname{Sec}^4 A (1-\sin^4 A) - 2 \tan^2 A$	instead of 56 and of another as 74 instead of 32. What is the correct	HCF and LCM is 403. If one of the number is 93, then the other	after 15 months on which he is
-	$(1 + \sin^2 A)(1 - \sin^2 A)$ 2 4	average ?	is -	charged a simple interest at the rate of 12% per year. The total
c) 1 hour 25 $\frac{7}{13}$ min	$=\frac{(1+\sin^2 A)(1-\sin^2 A)}{\cos^4 A} -2 \tan^2 A$	a) 68 b) 71 c) 67 d) 69	a) 116 b) 124	amount he pays for the TV is -
7	$= \sec^2 A + \tan^2 A - 2 \tan^2 A = 1$	Sol:	c) 112 d) 120	a) 17800 b) 16800
d) 1 hour 26 $\frac{7}{13}$ min	Ans: d	Correct average		c) 18200 d) 17200
Sol: A man rows 12 kms in 5 hours	7. A vendor purchased 40 dozen	$=\frac{14 71 + (56 - 42) + (32 - 74)}{4 - 32 - 74}$	Sol: $\frac{\text{LCM}}{\text{HCF}} = 12$	<i>Sol:</i> Listed price = 16000
against the stream, so upstream	bananas for 250. Out of these 30	14	LCM = 12 HCF	Amount paid = 4000
speed = $\frac{12}{5}$ = 2.4 km/hr	bananas were rotten and could	$=\frac{14 71+14-42}{14} = \ 71+1-3 = 69$	12 LCM + HCF = 403	Amount due = $(16000 - 4000)$
5	not be sold. At what rate per		HCF = 31	= 12000
Speed of current = 4 km/hr Speed of man	dozen should he sell the	Ans: d	$N_1 \times N_2 = HCF \times LCM$	Rate of S.I. = 12% Time = 15 months = 1.25 years
= 4 + 2.4 = 6.4 km/hr	profit of 20% ?	11. The value of $(\cos 0^{\circ} + \sin 45^{\circ} + \sin 30^{\circ})$ $(\sin 90^{\circ} - \cos 45^{\circ})$	$93 \times N_2 = 31 \times (31 \times 12)$ $N_2 = 124$	Time = $15 \text{ months} = 1.25 \text{ years}$ 12000 12 1.25
So, time taken to row 15 kms	-	+cos60°)	Ans: b	$SI = \frac{12000 12 1.25}{100} = 1800$
downstream	Sol:	a) $\frac{7}{4}$ b) $\frac{5}{4}$ c) $\frac{3}{4}$ d) $\frac{3}{2}$	16. On what sum of money will the	Amount paid by man after 15
7	Cost price of 40 dogzen bananas	a) $\frac{1}{4}$ b) $\frac{1}{4}$ c) $\frac{1}{4}$ d) $\frac{1}{2}$	difference between simple	months
$= 1 \text{ hour } 26\frac{7}{13} \text{ min} \qquad Ans:d$	= 250	Sol: $(\cos 0^\circ + \sin 45^\circ + \sin 30^\circ)$ (sin	interest and compound interest	= (12000 + 1800) = 13800
3. If 5 tan $A = 4$, then the value of		$90^{\circ} - \cos 45^{\circ} + \cos 60^{\circ})$	for 2 years at 5% per annum be	Total amount = $13800 + 4000$
$5\sin A - 3\cos A$ is	of per dozen bananas	$=\left(1+\frac{1}{\sqrt{2}}+\frac{1}{2}\right)\left(1-\frac{1}{\sqrt{2}}+\frac{1}{2}\right)$	equal to 63 ?	= 17800
$\sin A + 2\cos A$	$=\frac{250}{37.5}=\frac{20}{3}$		a) 24,800 b) 25,200 a) 25,500 d) 24,600	Ans: a
a) $\frac{9}{14}$ b) $\frac{5}{6}$ c) $\frac{5}{14}$ d) $\frac{7}{9}$	Profit percent = 20%	$\begin{pmatrix} 3 & 1 \\ 3 & 1 \end{pmatrix} \begin{pmatrix} 3 & 1 \\ 3 & 1 \end{pmatrix} = \begin{pmatrix} 9 & 1 \\ 2 & 7 \end{pmatrix}$	c) 25,500 d) 24,600 <i>Sol:</i>	21. A and B can do a piece of work in 15 days. B and C can do the
<i>Sol:</i> C	-	$\left(\frac{3}{2} + \frac{1}{\sqrt{2}}\right)\left(\frac{3}{2} - \frac{1}{\sqrt{2}}\right) = \frac{9}{4} - \frac{1}{2} = \frac{7}{4}$	Difference of Interest	same work in 10 days and A and
√41	Selling price $=\frac{20}{3} \frac{120}{100} = 8$	Ans: a		C can do the same in 12 days.
4	Ans: c	12. If $2\sin^2 \theta - 3\sin\theta + 1 = 0$, θ being	$= \text{Principal} \times \left(\frac{\text{Rate}}{100}\right)^2$	Time taken by A, B and C
B F A	8. 15 men can finish a work in 20	positive acute angle, then the	$63 = \text{Principal} \times \left(\frac{5}{100}\right)^2$	together to do the Job is
	days, however it takes 24 women	value of θ are		a) 8 days b) 9 days
$5 \tan A = 4$	to finish it in 20 days. If 10 men	a) 30°, 90° b) 60°, 55°	$Principal = 63 \times 4 \times 100$	c) 5 days d) 4 days
Tan A = $\frac{4}{5}$	and 8 women undertake to	c) 60° , 45° d) 45° , 50°	Principal = 25200	Sol: $A + B$ 15 5
3	complete the work, then they will	Sol: $2 \sin^2 \theta - 3 \sin \theta + 1 = 0$ $2 \sin^2 \theta - 2 \sin \theta - \sin \theta + 1 = 0$	Ans:b 17. If $\sin\theta + \cos\theta = \sqrt{2} \sin (90^\circ - \theta)$	B + C 10 - 60 - 6
$\frac{5\sin A - 3\cos A}{\sin A + 2\cos A}$	take - a) 20 days b) 30 days	$2 \sin^2 \theta - 2 \sin \theta - \sin \theta + 1 = 0$ $2 \sin \theta (\sin \theta - 1) - 1(\sin \theta - 1)$	then $\cot\theta$ is equal to :	B + C $10 - 60 - 6$
- 4 - 5	c) 10 days d) 15 days	$\sin \theta - 1 = 0;$ $2 \sin \theta - 1 = 0$	a) $\sqrt{2} + 1$ b) 0	C + A $12 - 5$
$=\frac{5}{\sqrt{41}}\frac{-3}{\sqrt{41}}=\frac{20-15}{5}=\frac{5}{5}$	Sol:	$\sin \theta = 1;$ $2 \sin \theta = 1$	c) $\sqrt{2} - 1$ d) $\sqrt{2}$	$\frac{1}{2(A+B+C)}$ 12 15
4 + 2 = 5 = 4 + 10 = 14	$15 \text{ men} \times 20 \text{ days} = 24 \text{ women } \times$	$\sin\theta = \sin 90^\circ$; $\sin \theta = \frac{1}{2} = \sin 30^\circ$	Sol: $\sin\theta + \cos\theta = \sqrt{2} \sin (90^\circ - \theta)$	
$\sqrt{41}$ + 2 $\sqrt{41}$	24 days	$\theta = 90^{\circ}; \qquad \theta = 30^{\circ}$	$\sin \theta + \cos \theta = \sqrt{2} \cos \theta$	Let total units of work $= 60$
Ans:c	5 men = 8 women	$\theta = 30^{\circ} \text{ or } 90^{\circ}$	$\frac{\cos\theta}{\sin\theta} = \frac{1}{\sqrt{2}-1}$	Work done by $A + B + C$ in a day
4. The length of two parallel chords		Ans: a	$\overline{\sin \theta} = \sqrt{2} - 1$	$=\frac{15}{2}$
of a circle of radius 5cm are 6 cm	1	13. The sum of $\frac{1}{x+y}$ and $\frac{1}{x-y}$ is	$\cot \theta = \sqrt{2} + 1 \qquad Ans: a$	
and 8cm in the same side of the	5	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	18. A train passes an electrical pole in 20 seconds and passes a	So, time taken by A, B and C together to do the job
centre. The distance between them is	Ans: a9. A can do half of a piece of work	a) $\frac{2y}{x^2 - y^2}$ b) $\frac{2x}{x^2 - y^2}$	in 20 seconds and passes a platform 250m long in 45	
a) 1 cm b) 2 cm	in 1 day, whereas B can do full. B		seconds. Find the length of the	$=\frac{60}{15} = 8$ days
c) 3 cm d) 1.5 cm	can do half the work as C in 1	c) $\frac{-2y}{x^2 - y^2}$ d) $\frac{2x}{y^2 - x^2}$	train.?	2 Ans: a

