CDS II 2018

The highest four-digit number which is divisible by each of the numbers 16,36, 45, 48 is

1.

a.	9180	b.	9360	c.	9630	d.	9840
2.	If $x = y^a$, $y =$	z^b and	$z = x^c$, then the	e value	of abc is		
a.	1	b.	2	c.	- 1	d.	0
3.	If $x = 2 + 2^{2/3}$	$+2^{1/3}$,	then the value	e of the	expression x^3	$-6x^2$	- 6x will be
a.	2	b.	1	c.	0	d.	-2
4.	How many fi	ve-digi	t numbers of	the form	n XXYXX is/	are div	isible by 33?
a.	1	b.	3	c.	5	d.	Infinite
5.	A five-digit n	number	XY235 is div	isible t	by 3 where X a	and Y a	are digits satisfying $X + Y \le 5$.
What i	is the number	of poss	sible pairs of v	alues o	of (X, Y)?		
a.	5	b.	6	c.	7	d.	9
6.	If $x^2 - 6x - 2$	7 > 0, the same of the same	hen which one	e of the	following is	correct'	
a.	-3 < x < 9			b.	x < 9 or x > -	- 3	
c.	x > 9 or x < -	- 3		d.	x < -3 only		
7.	The number of	of divis	ors of the nun	nber 38	808, exclusive	e of the	e divisors 1 and itself, is
a.	74	b.	72	c.	70	d.	68
8.	HCF and LC	M of tv	vo polynomial	ls are (2	$(x + 3)$ and $(x^3 + 3)$	$-9x^{2}-$	x + 105) respectively. If one of
the two	o polynomials	s is x^2 –	4x - 21, then	the oth	ner is		
a.	$x^2 + 2x - 21$			b.	$x^2 + 2x + 15$		
c.	$x^2 - 2x - 15$			d.	$x^2 - x - 15$		
9.	If α and β are	e two re	eal numbers su	uch tha	$t \alpha + \beta = -\frac{q}{}$	and α[$3 = \frac{r}{r}$, where $1 ,$
			wing is the gr		<i>p</i>	•	p
					1	a	αβ
a.	$\overline{\alpha + \beta}$	υ.	$\frac{\alpha}{\alpha} + \frac{\beta}{\beta}$	C.	$-\frac{1}{\alpha\beta}$	u.	$\alpha + \beta$
the wo	ciently as he a ork would have	ctually	did and 'B' v	vorked	one-third as e	fficient	n 5 days. Had 'A' worked twice ly as he actually did, 'A' along complete the job?
	$3\frac{1}{2}$ days				$4\frac{1}{6}$ days		
c.	$5\frac{1}{2}$ days			d.	$6\frac{1}{4}$ days		

11.	If $x^6 + \frac{1}{x^6} = k \left(x^2 + \frac{1}{x^2} \right)$, then <i>k</i> is equal to?										
a.	$\left(x^2 - 1 + \frac{1}{x^2}\right)$,	b.	$\left(x^4 - 1 + \frac{1}{x^4}\right)$						
c.	$\left(x^4 + 1 + \frac{1}{x^4}\right)$			d.	$\left(x^4 - 1 - \frac{1}{x^4}\right)$						
12.	If the sum o	f the sq	uares of three	consec	cutive natural	numbei	rs is 110, then the sum of their				
cubes	is										
a.	625	b.	654	c.	684	d.	725				
13.	The product	of two	integers p and	dq, wh	en $p > 60$ and	1 q > 60	, is 7168 and their HCF is 16.				
The sum of these two integers is											
a.	256	b.	184	c.	176	d.	164				
14.	If $\log_{10} 2 = 0.3010$ and $\log_{10} 3 = 0.4771$, then the value of $\log_{100} (0.72)$ is equal to										
a.	0.9286	b.	1.9286	c.	0.8572	d.	1.8572				
15.	If $a^x = b^y = c^z$ and $abc = 1$, then the value of $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$ will be equal to										
a.	-1	b.	0	c.	1	d.	3				
16.	If α and β and	re the r	oots of the equ	uation <i>a</i>	$ux^2 + bx + c =$	= 0, then	In the value of $\frac{1}{a\alpha + b} + \frac{1}{a\beta + b}$ is				
a.	$\frac{a}{bc}$	b.	$\frac{b}{ac}$	c.	$\frac{c}{ab}$	d.	$\frac{1}{abc}$				
17.	Consider the	e follov	ving statement	ts in res	spect of three	3-digit	numbers XYZ, YZX and ZXY:				
	1. The s	sum of	the numbers is	s not di	visible by (X	+Y+Z	Z).				
	2. The s	sum of	the numbers is	s divisi	ble by 111.						
8	Which of the	e above	e statements is	/are co	rrect?						
a.	1 only			b.	2 only						
c.	Both 1 and 2	2		d.	Neither 1 no	or 2					
18.	The number	of all p	pairs (m, n) , w	here <i>m</i>	and n are pos	sitive in	tegers such that $\frac{1}{m} + \frac{1}{n} - \frac{1}{mn} = \frac{2}{5}$				
is a.	6	b.	5	c.	4	d.	2				
	A II TO\4/55 "	/ I A I O	NDI DI ACE C	FOTOS	0.0.1/10/19/45	140 214	OAD IAIDIID DIL 00445 00000				
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a.	abc		b.	xyz	c.	0	d.	None of the above				
20.	The nur	nber o	of sides	s of two regul	ar poly	gons are in the	e ratio :	5 : 4. The difference between				
their i	their interior angles is 9°. Consider the following statements :											
	1. (One of	them	is a pentagon	and the	e other is a rec	tangle.					
	2. One of them is a decagon and the other is an octagon.											
	3. The sum of their exterior angles is 720°.											
	Which of the above statements is/are correct?											
a.	1 only		b.	2 only	c.	1 and 3	d.	2 and 3				
21.	The mir	nimun	n value	of the expres	ssion 2x	$x^2 + 5x + 5$ is						
a.	5		b.	$\frac{15}{8}$	c.	$-\frac{15}{2}$	d.	0				
				8		8	TI	TT				
22.	If H is t	he hai	rmonic	mean of P ar	nd Q, th	en the value o	of $\frac{H}{P}$ +	$\frac{\mathbf{n}}{\mathbf{Q}}$ is				
a.	1		b.	2	c.	$\frac{P+Q}{PQ}$	d.	$\frac{PQ}{P+Q}$				
23.	The sum of all possible products taken two at a time out of the numbers ± 1 , ± 2 , ± 3 , ± 4 is											
a.	0		b.	-30	c.	30	d.	55				
24.	The rem	nainde	er when	$13x^3 - 2x^2y -$	$13xy^2$ -	+ 10y³ is divid	led by ((x-2y) is equal to				
a.	Zero		b.	У	c.	y-5	d.	y + 3				
25.	If ab +	bc + c	ca=0,	then the valu	e of							
			(b^2)	$(a^2 + ab)$	$+(a^2)$	$(a^2 - ab) +$	$(a^2 b)$	$a)(b^2 - aa)$				
			(υ –	$\frac{(a^2)(c^2-ab)^2}{a^2}$	$\frac{+(a-bc)(b-bc)}{-bc}$	$\frac{bc)(c^2 - ab) + c}{b^2 - ca)(c^2 - ab)}$	$\frac{(a-b)}{(b)}$	$\frac{c_{j}(b_{j}-cu_{j})}{c_{j}}$				
-				(a	-bc)(t	(c - ca)(c - a)	(U)					
is	/v											
a.	-1		b.	0	c.	1	d.	2				
26.	What is	the p	rincipa	ıl amount whi	ch earn	s Rs. 210 as c	ompou	nd interest for the second year				
at 5%	per annu	ım?										
a.	Rs. 200	0	b.	Rs. 3200	c.	Rs. 4000	d.	Rs. 4800				
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If $a = xy^{p-1}$, $b = yz^{q-1}$, $c = zx^{r-1}$, then $a^{q-r}b^{r-p}c^{p-q}$ is equal to

19.

27.	In an examin	nation,	50% of the car	ndidate	s failed in Eng	glish, 4	0% fail	led in Hindi and			
15% failed in both the subjects. The percentage of candidates who passed in both English and Hindi											
is											
a.	20%	b.	25%	c.	60%	d.	75%				
28.	A train 100 m long passes a platform 100m long in 10 seconds. The speed of the train is										
a.	36 kmph	b.	45 kmph	c.	54 kmph		d.	72 kmph			
29.	A cyclist cov	vers his	first 20 km at	an ave	erage speed of	40 km	ph, and	other 10 km at an average			
speed	of 10 kmph a	nd the	last 30 km at a	an aver	age speed of 4	0 kmpl	n. Ther	the average speed of the			
entire	journey is										
a.	20 kmph	b.	26.67 kmph	c.	28.24 kmph		d.	30 kmph			
30.	In a race of 1	1000m,	A beats B by	150 m,	while in anot	her rac	e of 30	00 m, C beats D			
by 400	Om. Speed of	B is eq	ual to that of I	O. (Ass	ume that A, B	, C and	l D run	with uniform speed in			
all the	events). If A	and C	participates in	a race	of 6000m, the	en whic	h one	of the following is			
correc	t?				CX						
a.	A beats C by 250 m			b.	b. C beats A by 250 m						
c.	A beats by 115.38m				d. C beats A by 115.38m						
31.	The sum of a	ages of	a father, a mo	ther, a	son Sonu and	daught	ers Sav	vita and Sonia is 96 years.			
Sonu	is the younges	st numb	er of the fami	ly. The	year Sonu						
a.	44 years	b.	45 years	c.	46 years	d.	48 ye	ars			
32.	'A' is thrice	as good	d a workman a	ıs 'B' a	nd takes 10 da	ays less	to do	a piece of work, than 'B'			
takes.	The number	of days	taken by 'B'	alone to	o finish the wo	ork is					
a.	12	b.	15	c.	20	d.	30				
33.	Out of 85 ch	ildren p	olaying badmi	nton or	table tennis o	r both,	the tot	al number of girls in the			
group	is 70% of the	total n	umber of boys	s in the	group. The nu	ımber (of boys	playing only badminton			
is 50%	of the numb	er of bo	oys and the tot	tal num	ber of boys pl	aying l	oadmin	ton is 60% of the total			
numb	er of boys. Th	e numb	er of children	playin	g only table te	ennis is	40% o	of the total number of			
childr	en and a total	of 12 c	hildren play b	admint	ton and the tab	ole tenn	is both	. The number of girls			
playin	g only badmi	nton is									
a.	14	b.	16	c.	17	d.	35				
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34.	A person bo	ught tw	o articles X a	ınd Y fr	om a depa	rtmental s	tore. The sun of prices b	efore	
sales	tax was Rs. 1	30. The	ere was no sale	es tax o	n the articl	e X and 9	% sales tax on the		
article	e Y. The total	amoun	t the person p	aid, inc	luding the	sales tax	was Rs. 136.75. What w	as the	
price	of the article	Y befor	re sales tax?						
a Da	75	L	Da 95		Da 122	J	Do 125		
a. Rs.		b. o Mr. S	Rs. 85	c.	Rs. 123	d.	Rs. 125	anolly	
35.	_						his wife and the rest is e		
					•		dies and leaves half of l		
	•						leaves half of his proper		
		-					now owns Rs. 88,000 wo	orth of	
the pr	operty. The to	otal wo	rth of the prop	perty of	Mr. Sharn	na was			
a.	Rs. 1,00,000)		b.	Rs. 1,24,0	000			
c.	Rs. 1,28,000)		d.	Rs. 1,32,0	000	9.		
36.	X bought 4	bottles	of lemon juice	e and Y	bought on	e bottle o	f orange juice. Orange ju	iice per	
bottle	bottle costs twice the cost of lemon juice per bottle. Z bought nothing but contributed Rs. 50 for his								
share	of the drink v	which th	ney mixed tog	ether ar	nd shared t	he cost eq	ually. If Z's Rs. 50 is co	vered	
from	his share, the	n what i	is the cost of	one bott	le of orang	ge juice?			
a.	Rs. 75	b.	Rs. 50	c.	Rs. 46	d.	Rs. 30		
37.	Ten (10) yea	ars befo	ore, the ages o	f a motl	ner and her	daughter	were in the ratio 3:1. Ir	ı another	
10 ye	ars from now	, the rat	io of their age	es will b	be 13 : 7. W	Vhat are th	neir present ages?		
a.	39 years, 21	years		b.	55 years,	25 years			
c.	75 years, 25	years		d.	49 years,	31 years			
38.				•			0 boys who play carrom		
If eve	ery boy of the	class pl	lays at least of	ne of the	e two game	es, then ho	ow many boys play caro	m only?	
a.	30	b.	20	c.	15	d.	10		
39.	Two equal a	mounts	s were borrow	ed at 59	% and 4% :	simple int	erest. The total interest a	ıfter	
4 year	rs amounted t	o Rs. 40	05. What was	the tota	ıl amount b	orrowed?			
a.	Rs. 1075			b.	Rs. 1100				
c.	Rs. 1125			d.	Rs. 1150				
40.	Twelve (12)	men w	ork 8 hours p	er day a	and require	10 days t	o build a wall. If 8 men	are	
availa	ıble, how mar	ny hours	s per day mus	t they w	ork to fini	sh the wo	rk in 8 days?		

a.	10 hours	b.	12 hours	c.	15 hours	d.	18 hours			
41.	A milk vende	or houg	ht 28 litres of	milk at	the rate of R	s. 8.50 :	per litre. After adding some			
		_					w much water did he add?			
a.	4.5 litres	b.	4 litres	c.	3.5 litres	d.	3 litres			
42. The minute hand of a clock overtakes the hour hand after every 72 minutes of correct time. How much time does the clock lose or gain in a day of normal time?										
	_									
a.	Loss $121\frac{9}{11}$	minutes	S	b.	Loss $157\frac{1}{11}$	minute	S			
	9				1					
c.	Gain $121\frac{9}{11}$	minutes	S	d.	Gain $157\frac{1}{11}$	minute	S			
43.	A thief steals	s a car p	arked in a ho	use and	goes away w	ith a sp	eed of 40 kmph. The theft was			
discov	discovered after half an hour and immediately the owner sets off in another car with a speed of 60									
kmph.	kmph. When will the owner meet the thief?									
a.	55 km from the owner's house and one hour after the theft									
b.	60 km from the owner's house and 1.5 hours after the theft									
c.	60 km from the owner's house and 1.5 hours after the discovery of the theft									
d.	55 km from t	the own	er's house an	d 1.5 ho	ours after the	theft				
44.	X and Y toge	ether ca	n finish a ioh	in 6 da	vs X can alon	ne do th	e same job in 12 days.			
	_		e to do the sar			ie do tii	e sume job m 12 days.			
a.	16 days			b.	12 days					
					-					
c.	10 days			d.	8 days					
45.		_	_	identic	al rooms in 16	6 days.	In how many days can			
8 perso	ons paint 20 s	uch roo	oms?							
a.	12	b.	24	c.	36	d.	48			
46.	There are a z	eros ap	pearing imme	diately	after the deci-	mal poi	int in the value of $(0.2)^{25}$. It is			
given	that the value	of log ₁	$_{0}2 = 0.30103.$	The va	lue of n is					
		_		_		_				
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a. 25

b. 19

c. 18

d. 17

47. The ratio of the sum and difference of the ages of the father and the son is 11 : 3. Consider the following statements :

1. The ratio of their ages is 8:5.

2. The ratio of their ages after the son attains twice the present age will be 11:8.

Which of the statements given above is/are correct?

a. 1 only

b. 2 only

c. Both 1 and 2

d. Neither 1 nor 2

48. The solution of linear inequalities $x + y \ge 5$ and $x - y \le 3$ lies

a. Only in the first quadrant

b. In the first and second quadrants

c. In the second and third quadrants d.

In the third and fourth quadrants

49. It is given that the equations $x^2 - y^2 = 0$ and $(x - a)^2 + y^2 = 1$ have single positive solution.

For this, the value of a' is

a. $\sqrt{2}$

b.

C

2

.

50. If α , β and γ are the zeros of the polynomial $f(x) = ax^3 + bx^2 + cx + d$, then $\alpha^2 + \beta^2 + \gamma^2$ is equal to

a. $\frac{b^2 - a}{a}$

b. $\frac{b^2 - 2ac}{a}$

c. $\frac{b^2 + 2ac}{b^2}$

d. $\frac{b^2 - 2ac}{a^2}$

Consider the following for the next $\bf 04$ (four) items that follow:

	In an examin	ation o	f Class XI	I, 55% stu	dents passe	d in Biol	ogy, 62% passed in Physics,		
60% p	assed in Chen	nistry,	25% passe	d in Physi	cs and Biol	logy, 30%	passed in Physics and		
Chemi	stry, 28% pas	sed in	Biology ar	d Chemis	try. Only 29	% failed i	in all the subjects.		
51.	What percent	tage of	students p	assed in al	l the three	subjects?			
a.	6	b.	5	c.	4	d.	3		
52.	What percent	tage of	students p	assed in ex	xactly one s	subject?			
a.	21	b.	23	c.	25	d.	27		
53.	If the number	r of stu	dents is 36	0, then ho	w many pa	ssed in at	least two subjects?		
a.	270	b.	263	c.	265	d.	260		
54.	What is the ra	atio of	number of	students v	who passed	in both P	Physics and Chemistry to num	nbei	
of students who passed in both Biology and Physics but not Chemistry?									
a.	7:10	b.	10:7	c.	9:7	d.	7:9		
55.	Data on ratings of hotels in a city is measured on								
a.	Nominal scale				Ordinal so	cale			
c.	Interval scale	e		d.	Ratio scal	e			
56.	The average	marks (of Section	A are 65 a	and that of	Section B	are 70. If the average marks	of	
both th	ne sections co	mbined	l are 67, th	en the rati	o of numbe	er of stude	ents of Section A to that of		
Section	n B is								
a.	3:2	b.	1:3	c.	3:1	d.	2:3		
57.	The median of	of 19 ol	oservations	s is 30. Tw	o more obs	servations	s are made and the values of		
these a	are 8 and 32. V	What is	the media	n of the 2	1 observation	ons?			
a.	32		b.	30					
c.	20		d.	Canno	ot be detern	nined due	e to insufficient data		
58.	As the number	er of ob	servations	and class	es increase	s, the sha	pe of a frequency polygon:		
a.	Tends to become	ome jaş	gged						
b.	Tends to become	ome in	creasingly	smooth					

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Stays the same c.

Varies only if data become more reliable d.

59. Let \bar{x}_1 and \bar{x}_2 (where $\bar{x}_2 > \bar{x}_1$) be the means of two set comprising n_1 and n_2 (where $n_2 < n_1$) observations respectively. If \bar{x} is the mean when they are pooled, then which one of the following is

correct?

 $\overline{X}_1 < \overline{X} < \overline{X}_2$ a.

b. $\overline{x} > \overline{x}_2$

 $\overline{X} < \overline{X}_1$ c.

d. $(\overline{x}_1 - \overline{x}) + (\overline{x}_2 - \overline{x}) = 0$

Consider the following statements: 60.

Statement I:

Median can be computed even when the end intervals of a frequency distribution are open.

Statement II:

Median is a positional average.

Which one of the following is correct in respect of the above statements?

Both Statement I and Statement II are true and Statement II is the correct explanation of Statement I

Both Statement I and Statement II are true and Statement II is not the correct explanation of Statement I

Statement I is true but Statement II is false.

Statement I is false but Statement II is true. d.

If $\cos \theta = \frac{1}{\sqrt{5}}$, where $0 < \theta < \frac{\pi}{2}$, then $\frac{2 \tan \theta}{1 - \tan^2 \theta}$ is equal to 61.

a.

 $-\frac{4}{3}$ c. $\frac{1}{3}$ d. $-\frac{2}{3}$

If $0 < \theta < 90^{\circ}$, $0 < \phi < 90^{\circ}$ and $\cos \theta < \cos \phi$, then which one of the following is correct? 62.

h. $\theta > \phi$

 $\theta + \phi = 90^{\circ}$ c.

No conclusion can be drawn

63. On the top of a hemispherical dome of radius r, there stands a flag of height h. From a point on the ground, the elevation of the top of the flag is 30°. After moving a distance d towards the dome, when the flag is just visible, the elevation is 45°. The ratio of h to r is equal to

o.
$$\frac{\sqrt{3} + \sqrt{2}}{2\sqrt{2}}$$

$$\frac{\sqrt{3}+1}{2\sqrt{2}}d$$

a.
$$\sqrt{2}-1$$
 b. $\frac{\sqrt{3}+1}{2\sqrt{2}}$ c. $\frac{\sqrt{3}+1}{2\sqrt{2}}$ d d. $\frac{(\sqrt{3}+1)(\sqrt{2}-1)}{2\sqrt{2}}$ d

Let $\sin(A+B) = \frac{\sqrt{3}}{2}$ and $\cos B = \frac{\sqrt{3}}{2}$, where A, B are acute angle. What is $\tan(2A-B)$ equal to?

64.

a.
$$\frac{1}{2}$$
 b. $\sqrt{3}$ c. $\frac{1}{\sqrt{3}}$ d.

65. **Consider the following statements:**

1. If
$$\frac{\cos \theta}{1-\sin \theta} + \frac{\cos \theta}{1+\sin \theta} = 4$$
, where $0 < \theta < 90^{\circ}$, then $\theta = 60^{\circ}$.

If $3 \tan \theta + \cot \theta = 5 \csc \theta$, where $0 < \theta < 90^{\circ}$, then $\theta = 60^{\circ}$. 2.

Which of the statements given above is/are correct?

Consider the following statements: 66.

1.
$$\cos^2 \theta = 1 - \frac{p^2 + q^2}{2pq}$$
, where p , q are non-zero real numbers, is possible only when $p = q$

2.
$$\tan^2 \theta = \frac{4pq}{(p+q)^2} - 1$$
, where p, q are non-zero real numbers, is possible only when $p = q$

Which of the statements given above is/are correct?

1 only a.

2 only

Both 1 and 2 c.

d. Neither 1 nor 2

67. **Consider the following statements:**

> 1. $\cos \theta + \sec \theta$ can never be equal to 1.5.

Which of the statements given above is/are correct?										
a.	1 only				b.	2 only				
c.	Both 1	and 2			d.	Neithe	r 1 nor 2			
68.	If \sin^2	$x + \sin x = 1,$	then w	hat is th	ne valu	e of cos	$\sin^{12}x + 3\cos^{10}x$	c + 3 cc	$\cos^8 x + \cos^6 x?$	
	a.	– 1	b.	0		c.	1	d.	8	
69.	If 3 sin	$\theta + 5 \cos \theta$	= 4, the	n what	is the v	value of	$f(3\cos\theta-5)$	$\sin \theta$) ²	?	
	a.	9	b.	12		c.	16	d.	18	
70.	If cot	$\theta(1+\sin\theta)=0$	4m and	$\cot \theta$	1 – sin (θ) = 4 n	, then which	one of t	the following is correct?	
	a.	$(m^2 + n^2)^2 =$	mn			b.	$(m^2 - n^2)^2 = r$	nn		
	c.	$(\mathbf{m}^2 - \mathbf{n}^2)^2 = 1$	m^2n^2			d.	$(m^2 - n^2)^2 = r$ $(m^2 + n^2)^2 = r$	m^2n^2		
71.	If base and hypotenuse of a right triangle are $(u^2 - v^2)$ and $(u^2 + v^2)$ respectively and the area									
of the triangle is 2016 square units, then the perimeter of the triangle may be										
	a.	224 units	b.	288 un	nits	c.	448 units	d.	576 units	
72.	A circ	le is inscribed	l in an e	quilate	ral tria	ngle of	side of length	<i>l</i> . The	area of any square	
inscrib	ed in t	he circle is								
	a.	$\frac{l^2}{2}$	b.	$\frac{\sqrt{3}l^2}{4}$		c.	$\frac{l^2}{4}$	d.	$\frac{l^2}{6}$	
73.	Walls	(excluding ro	ofs and	floors)	of 5 ic	dentical	rooms having	g lengtl	n, breadth and height	
6m, 4r	n and 2	2.5m respectiv	vely are	to be p	ainted.	. Out of	five rooms, t	wo roo	ms have	
one sq	uare w	indow each h	aving a	side of	2.5m.	Paints	are available	only in	cans of 1 litre; and 1	
litre of	f paint of	can be used fo	or paint	ing 20 s	square	metres.	The number	of cans	required for painting is	
	a.	10	b.	12		c.	13	d.	14	
74.	Let S 1	be the paralle	logram	obtaine	ed by jo	oining t	he mid-points	of the	parallelogram T.	
Consid	der the	following sta	tements	s:						
	1.	The ratio of	area of	T to tha	at of S	is 2 : 1.				

The perimeter of S is half of the sum of diagonals of T.

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 $sec^2\theta + cosec^2\theta$ can never be less than 4.

2.

2.

	h of the	e above statem	nents is/	are correct?						
a.	1 only	y		b.	2 only	Ý				
c.	Both	1 and 2		d.	Neith	er 1 nor 2				
75.	The s	ides of a trian	gle are	5 cm, 6 cm ar	nd 7 cm	. The area of	the tria	ngle is approximately		
	a.	14.9 cm^2	b.	14.7 cm^2	c.	14.5 cm^2		d. 14.3 cm^2		
76.	There	e is a path of w	vidth 5n	n around a cir	cular p	lot of land wh	ose are	ea is $144\pi m^2$. The total		
area o	of the c	ircular plot in	cluding	the path surre	ounding	g it is				
	a.	349 m^2	b.	$289\pi\;m^2$	c.	$209~\pi~m^2$		d. 149 m^2		
77.	The la	at					er	al surface area of a cone		
is 462	is 462 cm ² . Its slant height is 35 cm. The radius of the base of the cone is									
	a.	8.4 cm	b.	6.5 cm	c.	4.2 cm	d.	3.2 cm		
78.	A sen	ni-circular pla	te is rol	led up to form	n a con	ical surface. T	he ang	le between the generator		
and th	ne axis	of the cone is								
	a.	60°	b.	45°	c.	30°	d.	15°		
79.	79. A solid right cylinder is of height π cm. If its lateral surface area is half its total surface area,									
then t	he radi	us of its base	is							
	a.	$\frac{\pi}{2}$ cm	h	πcm	C	1 cm	a	$\frac{2}{2}$ cm		
		2	o.	70 0111		π	u.	π		
80.		2			eadth 1:	π		π is cut up into exact		
	A rec	2	c of leng	gth 20 cm, bro		π 5 cm and heig	ht 10 c	π		
	A rec	tangular block	c of lengue	gth 20 cm, bro		π 5 cm and heig	ht 10 c	π		
	A recover of each	tangular block	of lengue least b.	gth 20 cm, bro possible num 16	ber of c	π 5 cm and heig cubes will be 20	ht 10 c	π m is cut up into exact		
numb	A recover of each	tangular block qual cubes. Th	t of length of least b.	gth 20 cm, bropossible num 16 of length <i>l</i> , the	ber of c c.	π 5 cm and heig cubes will be 20	ht 10 c d. area of	π is cut up into exact 24 the cube is		
numb	A recover of ea	tangular block qual cubes. Th 12 diagonal of a	t of length of least b.	gth 20 cm, bropossible num 16 of length <i>l</i> , the	ber of c c.	π 5 cm and heig cubes will be 20 total surface a	ht 10 c d. area of	π is cut up into exact 24 the cube is		
numb	A recover of ea	tangular block qual cubes. Th 12 diagonal of a	t of length of least b.	gth 20 cm, bropossible num 16 of length <i>l</i> , the	ber of c c.	π 5 cm and heig cubes will be 20 total surface a	ht 10 c d. area of	π is cut up into exact 24 the cube is		
numb	A recover of ea	tangular block qual cubes. Th 12 diagonal of a	t of length of least b.	gth 20 cm, bropossible num 16 of length <i>l</i> , the	ber of c c.	π 5 cm and heig cubes will be 20 total surface a	ht 10 c d. area of	π is cut up into exact 24 the cube is		
numb	A recover of ea a. If the a.	tangular block qual cubes. The 12 diagonal of a $3l^2$	b. cube is	gth 20 cm, bropossible num 16 of length l , th $\sqrt{3} l^2$	ber of c c. nen the c.	π 5 cm and heig cubes will be 20 total surface a $\sqrt{2} l^2$	ht 10 c d. area of d.	π is cut up into exact 24 the cube is		
numb 81.	A recover of ea. If the a.	tangular block qual cubes. The 12 diagonal of a $3l^2$ quilateral trian	b. cube is b.	gth 20 cm, bropossible num 16 of length l , th $\sqrt{3} l^2$	c. nen the c.	π 5 cm and heig cubes will be 20 total surface a $\sqrt{2} l^2$	ht 10 c d. area of d.	m is cut up into exact 24 the cube is $2l^2$		
numb 81. 82. area o	A recover of each a. If the a. An each of the tree	tangular block qual cubes. The 12 diagonal of a $3l^2$ quilateral trian	b. cube is b.	gth 20 cm, bropossible num 16 of length l , th $\sqrt{3} l^2$	c. nen the c.	π 5 cm and heig cubes will be 20 total surface a $\sqrt{2} l^2$	ht 10 c d. area of d.	m is cut up into exact 24 the cube is $2l^2$		
numb 81. 82. area o	A recover of each a. If the a. An each of the tree	tangular block qual cubes. The 12 diagonal of a $3l^2$ quilateral triangle, area of correct?	b. cube is b. gle, a s f the sq	gth 20 cm, bropossible num 16 of length l , the $\sqrt{3} l^2$ quare and a cauare and area	c. hen the c.	π 5 cm and heig cubes will be 20 total surface a $\sqrt{2} l^2$	ht 10 c d. area of d. meter. I	m is cut up into exact 24 the cube is $2l^2$ f T, S and C denote the nen which one of the		
numb 81. 82. area o	A recover of each a. If the a. An each of the traving is	tangular block qual cubes. The 12 diagonal of a $3l^2$ quilateral triangle, area of correct?	b. cube is b. gle, a s f the sq	gth 20 cm, bropossible num 16 of length l , the $\sqrt{3} l^2$ quare and a cauare and area	c. hen the c.	π 5 cm and heig cubes will be 20 total surface a $\sqrt{2} l^2$	ht 10 c d. area of d. meter. I	m is cut up into exact 24 the cube is $2l^2$ f T, S and C denote the nen which one of the		

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83.	The areas of two similar triangles are $(7-4\sqrt{3})$ cm ² and $(7+4\sqrt{3})$ cm ² respectively.										
The ra	tio of t	heir correspor	nding si	ides is							
	a.	$7 - 4\sqrt{3}$	b.	$7 - 3\sqrt{3}$	c.	$5 - \sqrt{3}$	d.	$5+\sqrt{3}$			
84.	The ch	nord of a circle	e is $\sqrt{3}$	times its rad	ius. The	e angle subten	ded by	this chord at the minor			
arc is	k times	the angle sub	tended	at the major a	arc. Wh	at is the value	of k?				
	a.	5	b.	2	c.	$\frac{1}{2}$	d.	$\frac{1}{5}$			
85.	In a tri	iangle ABC, t	he side	s AB, AC are	produc	ed and the bis	ectors (of exterior angles of			
\angle ABC and \angle ACB intersect at D. If \angle BAC = 50°, then \angle BDC is equal to											
	a.	115°	b.	65°	c.	55°	d.	40°			
86.	Two cones have their heights in the ratio 1:3. If the radii of their bases are in the ratio 3:1,										
then th	then the ratio of their volumes will be										
	a.	1:1	b.	2:1	c.	3:1	d.	9:1			
87.	If two	lines AB and	CD int	ersect at O su	ch that	$\angle AOC = 5 \angle$	AOD,	then the four angles at C			
are											
	a.	40°, 40°, 140	°, 140°		b. 30°, 30°, 150°, 150°						
c.	30°, 4	5°, 75°, 210°		d.	60°, 60°, 120°, 120°						
88.	If a po	int P moves s	uch tha	t the sum of t	he squa	res of its dista	nces fr	om two fixed points			
A and	B is a	constant, then	the loc	cus of the poir	nt P is						
	a.	A straight lin	e		b.	A circle					
	c.	Perpendicula	r bisect	or of AB	d.	An arbitrary	curve				
89.	If ABO	C is a right-an	gled tri	angle with A	C as its	hypotenuse, the	hen wh	ich one of the following			
is corr			2			2 2	2				
	a.	$AC^3 < AB^3 + AB^3 + BC^3$	BC ³			$AC^3 > AB^3 +$	BC^3				
c.	$AC^3 \le$	$AB^3 + BC^3$		d.	$AC^3 \ge$	$AB^3 + BC^3$					

The area of the region bounded externally by a square of side 2a cm and internally by the

 $(4-\pi)a^2$ b. $(\pi-2)a^2$ c. $(8-\pi)a^2/2$ d. $(\pi-2)a^2/2$

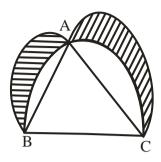
90.

a.

circle touching the four sides of the square is

91. In the figure given below, ABC is a right-angled triangle where \angle A = 90°, AB = p cm and AC = q cm. On the three sides as diameters semicircles are drawn as shown in the figure.

The area of the shaded portion, in square cm, is



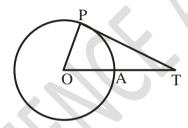
a. pq

b. $\pi(p^2+q^2)/2$

c. $\pi (p^2 + q^2)$

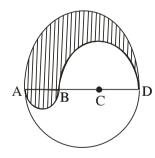
d. $\frac{pq}{2}$

92. In the figure given below, the radius of the circle is 6 cm and AT = 4cm. The length of tangent PT is



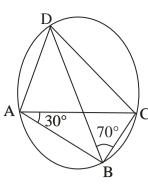
- a. 6 cm
- b. 8 cm
- c. 9 cm
- d. 10 cm

93. In the figure given below, ABCD is the diameter of a circle of radius 9 cm. The lengths AB, BC and CD are equal. Semicircles are drawn on AB and BD as diameters as shown in the figure. What is the area of the shaded region?

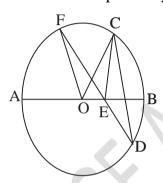


- a. 9π
- b. 27π
- c. 36π
- d. 81π

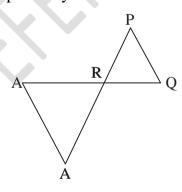
94. In the figure given below, what is \angle BCD equal to ?



- a. 70°
- b. 75°
- c. 80°
- d. 90°
- 95. In the figure given below, AB is the diameter of the circle whose centre is at O. Given that \angle ECD = \angle EDC = 32°, then \angle CEF and \angle COF respectively are :



- a. $32^{\circ}, 64^{\circ}$
- b. 64°, 64°
- c. 32°, 32°
- d. 64°, 32°
- 96. In the figure given below, $\triangle ABR \sim \triangle PQR$. If PQ = 3 cm, AB = 6 cm, BR = 8.2 cm and PR = 5.2 cm, then QR and AR are respectively



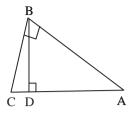
a. 8.2 cm, 10.4 cm

b. 4.1 cm, 6 cm

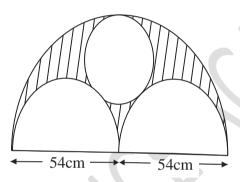
c. 2.6 cm, 5.2 cm

d. 4.1 cm, 10.4 cm

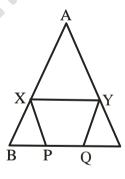
97. In the figure given below, ABC is a triangle with AB perpendicular to BC. Further BD is perpendicular to AC. If AD = 9 cm and DC = 4 cm, the what is the length of BD?



- a. $\frac{13}{36}$ cm b. $\frac{36}{13}$ cm c. $\frac{13}{2}$ cm
- d. 6 cm
- In the figure given below, the diameter of bigger semicircle is 108 cm. What is the area of the 98. shaded region?



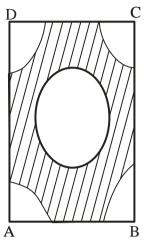
- 201π cm² a.
- b.
 - $186.3\pi \text{ cm}^2$ 405π cm² c.
- $769.5\pi \text{ cm}^2$ d.
- In the figure shown below, ABC is an equilateral triangle with each side of length 30 cm. 99. XY is parallel to BC, XP is parallel to AC and YQ is parallel to AB. If XY + XP + YQ is 40 cm, then the value of PQ is



- 5 cm
- b. 12 cm
- c. 15 cm
- d. 10 cm

In the figure given below, ABCD is a square of side 4 cm. Quadrants of a circle of diameter 100. 2 cm are removed from the four corners and a circle of diameter 2 cm is also removed.

What is area of the shaded region?



- a. $5\frac{7}{9}$ cm² b. $7\frac{7}{9}$ cm²
- $9\frac{5}{7} \text{ cm}^2$
- $9\frac{5}{6}$ cm² d.