



WvP-evsj v e'vsK - c0_g Avtj v MwYZ Drme 2010
ফরিদপুর আঞ্চলিক গণিত অলিম্পিয়াড
AvtqvRK: evsj v` k MwYZ Awj w'uqvw KngwU



ক্যাটাগরি: প্রাইমারি (৩য়-৫ম শ্রেণী)

সময়: ১ ঘণ্টা ১৫ মিনিট

নাম(বাংলায়):

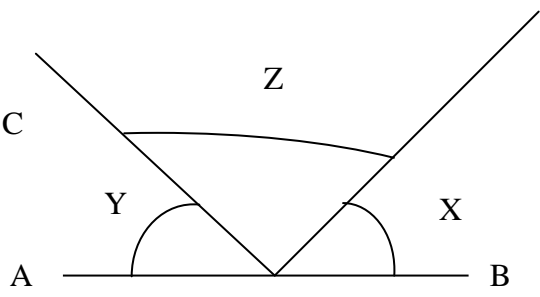
শ্রেণী(২০০৯ সাল):

Name (In English):

Registration No:

[এই উত্তরপত্রের নির্দিষ্ট স্থানে উত্তর লিখতে হবে। খসড়ার জন্য পৃথক কাগজ ব্যবহার করতে হবে এবং তা জমা দিতে হবে। সকল সংখ্যা ইংরেজীতে লেখা হয়েছে। সবাইকে নিজ নিজ উত্তরপত্র জমা দিতে হবে।]

bs	c0g	Dēi
1.	1 t_#K 112 Gi gta" tgvU KZwU msL'v AvtQ hvi v 12 Gi wYZK wKŠ'6 Gi wYZK bq? What is the total number of the numbers from 1 to 112 which are divisible by 12 but not by 6?	0
2.	6-Gi Drcv`K 4wU -1, 2, 3, 6 Ges tgvU K Drcv`K i'ayv' `BwU - 2, 3 105 Gi me'gvU KZ_#j v Drcv`K AvtQ? The number 6 has four factors 1, 2, 3, 6 and 2, 3 as only the prime factors. How many factors 105 has?	8
3.	cuPwU wi Kkv` c0Z N0Uvq h_v#tg $\frac{10}{20}$, $\frac{20}{30}$, $\frac{30}{40}$, $\frac{40}{50}$, $\frac{50}{60}$ gvBj P#j ৳ZMvgx Ges axiMvgx wi Kkv`wU i t#Mi cv`K` KZ ? Five rickshaws run at a speed of $\frac{10}{20}$, $\frac{20}{30}$, $\frac{30}{40}$, $\frac{40}{50}$, $\frac{50}{60}$ miles per hour respectively. What is difference between the speed of fastest and slowest rickshaw?	$\frac{20}{60} = \frac{10}{30} = 0.33$
4.	GKwU ev# 4 t_#K 215 chŠ' 11 Gi wYZK (11 0viv wefivR") msL'v_#j v ivLv nj ev# tgvU KqUw msL'v AvtQ? There are all the multiples of 11 from 4 to 215 in a box. How many numbers are there in the box?	19
5.	1, 2, 3, 4, 5, GB cuPwU AsK t_#K c0Zevi `BwU K#i AsK wbtq tgvU KqUw abvZK fMusk `Zwi Kiv hvte hv# i gvb 1 Gi tPtq Kg? How many positive proper fractions can be made using any two of the five digits 1, 2, 3, 4, 5 at a time?	10
6.	tKvP Rb eKvb#bi 0Pvi AwabvqK ZĒ# Abjv#i Kj KvZv bvBU ivBWvm`#j i 25% wmxvŠ' t#te wum tMBj, 30% wmxvŠ' t#te g'vKKvjvg, 25% wmxvŠ' t#te tmŠi f Mw'j x Aci AwabvqK e'w nR hw` tKvb GK g'vP 5wU wmxvŠ' t#te Zte IB g'vP tgvU KqUw wmxvŠ' t#te qv n#qUj ? According to the '4 captains theorem' by the Coach John Buchanan of Kolkata Night Riders 25% decision will be made by Chris Gayle, 30% will be made by Mcculam and 25% will be made by Sourav Ganguly. If the other captain Brad Hodge took 5 decisions in a match, what was the total number of decisions that were made in that match?	25
7.	GKwU mPj `fweK NwotZ 11 N0Uvq (`j 1Uv t_#K ivZ 12Uv) KZevi wgvb#U i KuUv N0Uvi KuUvi wK Dc#i Ae`vb K#i ?	11

bs	cŭg	DĖi
	How many times in 11 hours (from 1pm to 12pm) the dial of minute stands just above the dial of hour in the watch?	
8.	<p>16 wvwmvŕ evsj vt` tki wvRq w em 16/12/1971 Zvwi tL evsj vt` k t`axb nq 16,12 Ges 2010 Gi ydŕj i tgvŕj K Drcv` K, tŕj v wbyŕ Ki </p> <p>16th December is the Victory Day of Bangladesh. Bangladesh achieved its independence in 16/12/1971. Find out all the prime factors of the product of 16, 12 and 2010.</p>	2, 3, 5, 67
9.	<p>wgZi cŭZw` b UvKvi evŕ. AvtMi w` tbi wŭY cwi gvb UvKv Rgv Kti cŭgw` b wgZi 1 UvKv w` tŕ i iyKti wQj lŕw` b tŕtŕl wgZi evŕ. tgvU KZ UvKv Rgv nj ? wgZi cŭZw` b Mto KZ UvKv Kti Rgvj ?</p> <p>Everyday Mitu saves money in her money bank. She saves everyday twice the amount than she saved in the previous day. Mitu started with taka 1. What will be the total amount of money in her bank after six days? What is the average amount of money that she saved per day?</p>	63; $63/6=10.5$
10	 <p>wvŕwŕZ AB Ges CD ci`ui mgvŕŕ ij $X = Y = 45^0$ ntŕ $\angle Z$ Gi cwi gvc KZ?</p> <p>In the figure $\angle X = \angle Y = 45^0$. Then find the value of the $\angle Z$.</p>	90^0
11.	<p>GKwU Nti 4 Rb AwZw` etm AvtQ Gt` i cŭZ` tK nq imgvj vB cŭ` Kti bv nq ivRtŕvM cŭ` Kti Zte Aŕŕ Z GKRB ivRtŕvM cŭ` Kti hw` thŕKvb` Bŕtbi Aŕŕ Z GKRB imgvj vB cŭ` Kti Zvntŕ AwZw` t` i tgvU KZRB imgvj vB cŭ` Kti?</p> <p>4 visitors are sitting in a room. Each one likes <i>ROSMALAI</i> or <i>RAJVOG</i>. At least one likes <i>RAJVOG</i>. Given that between any two students at least one likes <i>ROSMALAI</i>. How many visitors like <i>ROSMALAI</i>?</p>	3
12.	<p>hw` a Ges b Dfqb tRvo mSL`v nq wbtPi tKvbwU Aek`B wvŕvvo nŕe? If a and b are both even numbers, which of the following must be an odd integer?</p> <p>i) $(a + b)^2$ ii) $a^2 + b^2$ iii) $(a + 1)^2 + (b + 1)^2$ iv) $a - b + 1$ v) $(a + 1) \times (b + 1) - 1$</p>	iv) $a - b + 1$



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ক্যাটাগরি: জুনিয়র (৬ষ্ঠ-৮ম শ্রেণী)

সময়: ১ ঘণ্টা ১৫ মিনিট

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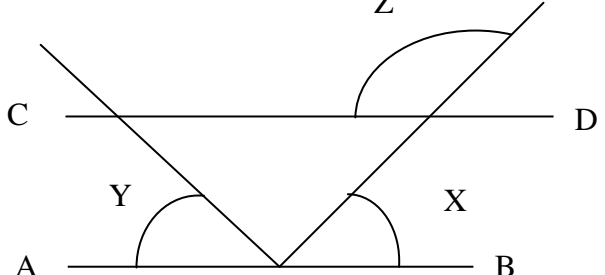
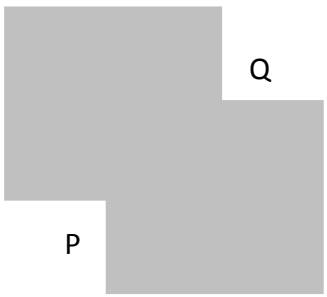
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bs	cKæ	DËi
1.	25 wq. l 45 wq. ^`tNq `yU `E ntZ mtePP KZ mgvb ^`tNq `E Dfq `E t_tKB tKtU tbi qv mæ? What is the maximum equal length of a stick that can be cut both from 25m and 45m stick?	24/25
2.	Pvi At/i th KqU mSL`v AvtQ hv` i t_tK 12 w tqM Ki tj Zv 12 w` tq, 17 w tqM Ki tj Zv 17 w` tq Ges 19 w tqM Ki tj Zv 19 w` tq fW hvq tm mSL`v wj wYq Ki Find all the 4-digit numbers which are divisible by 12, 17 and 19 if 12,17 and 19 iare subtracted from the numbers respectively.	3876, 7752
3.	egeg `vDUt` i mæsj tb wMtqtQ tmLv tb cZ`K `vDU Ab`vb` i mvt_ Kig` B Kivi K_v tKD tKD Avevi Kig` B Kitiwb mefgvU Kig` fbi mSL`v 9 ntj mebgwKZMjv Kig` B nqwb? Boomboom joined Scout Jamboree. Every scout was said to handshake with each other. Some of them did not do. The total number of handshakes was 9. Find the minimum number of handshakes which were not done?	1
4.	1, 2, 3, 4, 5, 6, 7 GB mvZwU Ask t_tK cZevi `BwU Kti Ask wbtq tgvU KqU abvZK fMusk `Zwi Kiv hvte hv` i gvb 1 Gi tPtq Kg? How many positive fractions can be made using any two of 1, 2, 3, 4, 5, 6, 7 each time whose value would be less than 1?	21
5.	Ggb tgSwj K mSL`v N wYq Ki thb 16N+5 GKwU tgSwj K mSL`v nq Find the prime number N for which 16N+5 is prime?	2
6.	Rb eKvb`bi Opvi AwabvqK ZËf- Abmvti Kj KvZv bvBU i vBWwm` tj i 25% wmvvSf tbte wpm tMBj, 30% wmvvSf tbte g`vKKvjvg, 25% wmvvSf tbte tmSi f Mwzj x Aci AwabvqK e`vW nR hw` tKvb GK g`vP wU wmvvSf tbq Zte l B g`vP tgvU wmvvSf tbi qv ntqvQj KqU? According to the '4 captains theorem' by the Coach John Buchanan of Kolkata Night Riders 25% decision will be made by Chris Gayle, 30% will be made Mcculam, 25% will be made by Sourav Ganguly. If the other captain Brad Hodge takes 6 decisions in a match then what is the total number of decisions that were made in that match?	30
7.	1 t_tK 150 Gi gta` tgvU KZwU mSL`v AvtQ hviv 15 Gi wYZK wKs` 5 Gi wYZK bq? What is the total number of the numbers from 1 to 150 which are divisible by 15 but not by 5?	0

bs	ckæ	DËi
8.	 <p> wPíwUz AB Ges CD ci`úi mgvšÍ ivj $X = Y = 50^0$ ntj $\angle Z$ Gi cwigvc KZ? In the figure AB and CD are parallel. $\angle X = \angle Y = 50^0$ then find the value of the $\angle Z$. </p>	130^0
9.	 <p> cvtki wPíwUz mgvb etú weikó GKwU eM°Aci GKwU etMP Dci AvsukKfvte Ae`vb KiŕQ P I Q etMP evüi ga`we`y evüi %N°4 GKK Ovqv Av`Qw` Z cŕiv Gj vKwUj ক্ষেত্রফল wYŕ Ki Two square of length 4 are put in a position as the figure. P and Q are the mid point. Find the total shaded area? </p>	28
10.	<p> hw` a Ges b DfqB tRvo msL`v nq wŕPi tKvbU Aek`B weŕRvo nte? If a and b are both even numbers, which of the following must be an odd integer? i) $(a + b)^2$ ii) $a^2 + b^2$ iii) $(a + 1)^2 + (b + 1)^2$ iv) $a - b + 1$ v) $(a + 1) \times (b + 1) - 1$ </p>	iv) $a - b + 1$
11.	<p> Avgvi KvŕQ wZbwU nvZNwo AvŕQ cŏgwU 10 wgbU axŕi Pŕj , wŒZxqvU bó Ges ZZxqvU cŏZ wgbU 1 tmŕKŪ Kŕi wcuŕq cŕo Avgvi gv_vq fvebv Avmj th, Gi gŕa` t_ŕK Ggb GKwU Nwo cŕi evBŕi ŕei ne thUv mviw` ŕb meŕPŕq ŕenk mgq mwWK mgq t`Lvŕe Zŕe Avgvi KvŕQ Nwo wK Kivi tKvb Dcvq AvcvZZ ŕbB Zŕg AvgvŕK tKvb Nwou ciŕZ cŕvgkŕŕ ŕe? I have three watches. First watch runs 10 minutes slow, 2nd one is damaged and remaining one is lagging behind by 1 sec in every minute. I am wondering to go out outside with the one which will show me correct time in most of the times. Which one should I take? </p>	wŒZxqvU (bówU)
12.	<p> 3 Rb eÜzcŏZw` b GKwU ti ÷ ŕiŕUi tMvj tUetj i PZw`ŕK 3wU GKB i Kg tPqvŕi etm AvCv`ŕ`b Zviv cŏZw` b wŕbawŕbaweb`vŕm emŕZ cŒ` Kŕib Gfvŕe Pj ŕZ _vKŕj meŕgUv KZw` b Zviv bZb bZb web`vŕm emŕZ cviŕeb? 3 friends chat everyday in a round table in restaurant sitting on same 3 chairs. They like to sit in a new permutation everyday. How many days can they sit in new arrangement? </p>	2! = 2



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AvtqvRK: evsj v` k MwYZ Awj w'úqvW KngwU



ক্যাটাগরি: সেকেন্ডারি(৯ম-১০ম শ্রেণী)

সময়: ১ ঘণ্টা ১৫ মিনিট

নাম(বাংলায়)

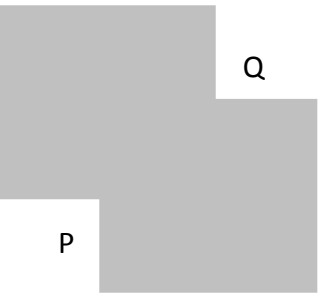
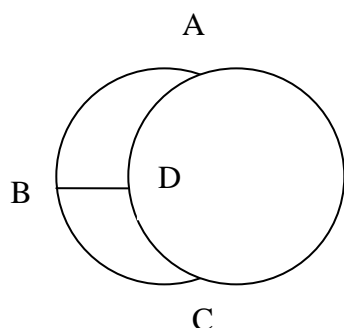
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bs	cŭg	DĒi
1.	<p>QvitcvKv Rtbŭ ciw b t_ŭKB cŭZw b GKwU Kti evPv t_lqv i'iy Kti QvitcvKv MtelK wŭ: ˘xtck 17 wŭtm˘ŭt GKwU evt. m˘˘ Rbŭ tbi qv GKwU QvitcvKv tiŭL w_tj b 23 wŭtm˘ei H evt. KqŭU QvitcvKv _vKte?</p> <p>A bug starts breeding on the very next day of its birth. In 17th December bug researcher Mr. Dipesh kept a new born bug in a box. What will be the number of bugs in that box after 23rd December?</p>	2^6 = 64
2.	<p>iwebŭW fvj Zxi QpŭZ cviŭj AsK KiŭZ cviŭj bv 3m e'vmvŭaP GKwU tMvj vKvi KvŭWŭP tevW[©] iwebŭWi mvgtb ivLv nj Ges 1m 2m e'vmvŭaP mgŭKw˘K ˘ŭU eĒ GŭK tevWŭŭtK tgvU wZbfvŭM fŭM Kiv nj iwebŭW tevW[©]লক্ষ্য Kti Zxi Qmŭj Zv 2q fvŭM j vMvi m˘de Zv tei Kti iwebŭWŭK Rvbi </p> <p>Robinhood is undoubtedly a very good archer but his mathematical ability tends to zero. A circular board of 3m in radius is kept in front of Robinhood. Then two concentric circles 1m and 2m in radius are drawn on the board. Now if Robinhood throws an arrow what is the probability that the arrow will hit the second portion of the board?</p>	$\frac{1}{3}$ 33.33% 0.33
3.	<p>Avgvi KvŭQ wZbŭU nvZNŭo AvŭQ cŭgŭU 10 wŭbŭU axŭi Pŭj, wŭZxqŭU bŭ Ges ZZxqŭU cŭZ wŭbŭU 1 tmŭKŭ Kti wŭQŭtq cŭto Avgvi gv_vq fvebv Avmj th, Gi gŭa˘ t_ŭK Ggb GKwU Nŭo cŭi evBŭi tei ne thŭv mviw˘ tb meŭPŭtq tewk mgq mwVK mgq t˘ Lvŭe Zŭe Avgvi KvŭQ Nŭo wVK Kivi tKvb Dcvq AvcvZZ tbB Zŭg AvgvŭK tKvb NŭowU ciŭZ civgk[©] te?</p> <p>I have three watches. First watch runs 10 minutes slow, 2nd one is damaged and remaining one is lagging behind by 1 sec in every minute. I am wondering to go out outside with the one which will show me correct time in most of the times. Which one should I take?</p>	wŭZxqŭU (bŭwU)
4.	<p>1 t_ŭK 100 Gi gŭa˘ tgvU KZŭU msL˘v AvŭQ hviv 10 Gi ˘wYZK wKŭŭ 5 Gi ˘wYZK bq?</p> <p>What is the total number of the numbers which are divisible by 10 but not by 5?</p>	0
5.	<p>GKŭv 3 wŭ ˘˘ tNŭ eMŭKwZi cKŭi i Pvi tKvYvq PviŭU MwQ AvŭQ Ges cKŭi gvQ Pvi Kiv nq MwQ bv tKŭU cKŭi i AvKvi emŭtq meŭŭK th eMŭKwZi cKŭi ˘Zwi Kiv m˘e Zvi ˘NŭKZ?</p> <p>There are 4 trees on the 4 corners of a square pond having side length of 3m. Without cutting the trees and without changing the shape of the pond what could be the maximum side length of the pond?</p>	$3\sqrt{2}$ = 5.20

bs	cŭg	DĖi
6.	 <p>Two squares of length 6 are put in a position as the figure. P and Q are the mid point. Find the total shaded area.</p>	63
7.	<p> x and y are two digits and $[x][y]$ represents the number $10x+y$. If $[x][y]$ and $[y][x]$ are both primes and $[x][y]-[y][x]=\frac{(x-y)}{2}[2(x+y)]$ find $x+y$. </p>	4
8.	 <p>The crescent moon ABCD is formed with two arcs ABC and ADC which are parts of two equal circles (B and D are midpoints of the circles). Line segment $AC=24$ cm and $BD=10$ cm. Find the radius of the circle.</p>	13
9.	<p>Boomboom has 2 mangos, 1 bananas and 1 litchi. Find the no. of all possible ways by which he can give anyone from these fruits?</p>	$3 \times 2 \times 2 = 12/11$
10.	<p> $f(x) = \frac{1}{x-1}$ Gi ti Ä KZ? Find the range of $f(x) = \frac{1}{x-1}$ </p>	$R - \{0\}$
11.	<p>Avik, Milon, Subrata and Helal will cross a bridge in the night. They need 10, 11, 12 and 13 minutes respectively to cross the bridge. They have only one torch light. It is possible only for 2 persons to cross together with that torchlight. Find the smallest possible time needed for these 4 persons to cross the bridge.</p>	56
12.	<p> In the four digit number 12ab, a and b are digits. Find a and b such that the number 12ab is divisible by 2, 5 and 7. </p>	6, 0

ক্যাটাগরি: হায়ার সেকেন্ডারি (একাদশ-দ্বাদশ-এইচএসসি)

সময়: ১ ঘণ্টা ১৫ মিনিট

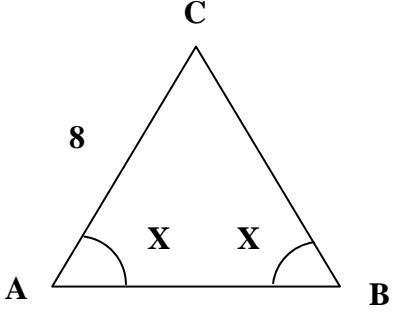
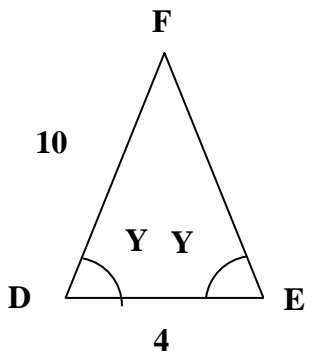
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bs	ckæ	DËi
1.	<p>GKw Nti 5 Rb AwZw_ efm AvtQ Gt` i c0Z`tk nq imgyj vB c0` Kti bv nq ivRtfwM c0` Kti Zte AšÍ Z GKRb ivRtfwM c0` Kti hw` thtKvb `ßRtbi AšÍ Z GKRb imgyj vB c0` Kti Zvntj AwZw_ t` i tgvU KZRb ivRtfwM c0` Kti?</p> <p>5 visitors are sitting in a room. Each one likes <i>ROSMALAI</i> or <i>RAJVOG</i>. At least one likes <i>RAJVOG</i>. Given that between any two students at least one likes <i>ROSMALAI</i>. How many visitors like <i>RAJVOG</i>?</p>	1
2.	<p>1 t`tk 100 chšÍ Ggb KqW cYmsL`v AvtQ hv 3 wKsev 4 Gi wYZK wKš' 5 Gi wYZK bq?</p> <p>From 1 to 100, how many integers are multiples of 3 or 4 but not of 5?</p>	40
3.	<p>4 Rb eÜzc0Zw` b GKw ti ÷ t`tUi tMvj tUetj i PZw` tK 4w GKB i Kg tPqvti efm AvCv t` b Zviv c0Zw` b wfbawfbaweb`vfm emtZ c0` Ktib Gfvte Pj tZ vKtj mefgvU KZw` b Zviv bZb bZb web`vfm emtZ cvi t`eb?</p> <p>4 friends chat everyday in a round table in restaurant sitting on same 4 chairs. They like to sit in a new permutation everyday. How many days can they sit in new arrangement?</p>	<p>3!</p> <p>= 6</p>
4.	<p>QvitcvKv Rtbf ciw` b t`tkB c0Zw` b GKw Kti ev`Pv t` lqv` i iy Kti QvitcvKv MtetK wg: `xtck 2 wWtmæf GKw evt` m` Rb t`lqv GKw QvitcvKv ti tLw` tjb 8 wWtmæei tktl H evt` KqW QvitcvKv vKte?</p> <p>A bug starts breeding on the very next day of its birth. In 2nd December bug researcher Mr. Dipesh kept a new born bug in a box. What will be the number of bugs in that box after 8th December?</p>	<p>2⁶</p> <p>= 64</p>
5.	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p style="text-align: center;">$x = 60^\circ$ ntj ΔDEF Gi cwi mxgv wbyq Ki </p> <p style="text-align: center;">In this figure $x = 60^\circ$. Find the perimeter of ΔDEF.</p>	24

