

PrimerTarea21-1

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- 1 a) Sea \mathbb{Z}_n y $a, b \in \mathbb{Z}_n$ mostrar que: $(-a)b = -ab \mod(n)$.
b) si $a \in \mathbb{Z}_n^*$ y $ax \cong b \mod(n)$ implica que
 $x \cong ba^{-1} \mod(n)$.
c) Si $a \cong b \mod(n)$ entonces $a^n \cong b^n \mod(n)$.
- 2 a) Resolver paso a paso la siguiente congruencia
 $8x \cong 2 \mod(26)$.
b) Resolver el siguiente sistema de congruencias de ser posible de lo contrario de una razón específica de porque no se puede resolver.

$$x \cong 4 \mod(11)$$

$$x \cong 25 \mod(35)$$

$$x \cong 15 \mod(22)$$

$$x \cong 5 \mod(10)$$

- c) Resolver el siguiente sistema de congruencias de ser posible, de lo contrario de una razón específica de porque no se puede resolver.

$$x \cong 4 \mod(7)$$

$$x \cong 5 \mod(33)$$

$$x \cong 6 \mod(14)$$

$$x \cong 10 \mod(22)$$

- 3 a) Sea $\varphi(x)$ la función de Euler, mostrar que $\varphi(p^n) = p^n - p^{n-1}$.
b) Dar la cardinalidad de \mathbb{Z}_{129}^* y dar sus elementos listados de la forma (a, a^{-1}) .
- 4 Descifrar el siguiente mensaje codificado en monoalfabetico explicando paso a paso como lo descifras. No se tomara en cuenta si no se explica como se obtiene la clave.

MKBHP IOJTQPG GPS LQDJIDLP GOS AUJIDKJOS MOG MJP SO QOSUHOJ OJ OG GGPHPMK
MKBHP IOJTQPG MO GP BOJOTDIP HKGOIUGPQ. OG MJP SOHLOJP TPJTK UJP AUJIDKJ
PUTKIPTPGDTPDIP IKHK UJP AUJIDKJ COTOQKIPTPGDTPDIP TQPJSIQDLIDKJ OJ QJP GP TQP-
MUIIDKJ P LQKTODJPS SO GGOVP P IPRK IKJ HKGMOS K LPTQKJOS MO QJPH, JUJIP IKJ
GKS HKGMOS K LPTQKJOS MO MJP. GKS BOJOS GGOBPJ P OXLQOSPQSO AOJKTDLDIPHO-
JTO MORDMK P SU IPLPIDMPM LPQP OSLOIDADIPQ GPS OSTQUITUQPS MO GPS LQKTODJPS
RDKGKBDIPHOJTO PITDVPS.

IKMDBK BOJOTDIK GPS QOPIIDKJOS RDKNUHDHIPS SKJ HOMDMPS LKQ OJZDHPS, GPS IUP-
GOS SKJ TKMPS LQKTODJPS. GPS LQKTODJPS SKJ LKGDHOQKS SO SURUJDMPPMMOS HKJKHO-
QKS MOJKHJDJPMKS PHDJKPIDMKS, P HOJUMK GGPHPMKKS QOSDMUKS. IPMP PHDJKPIDMK

TDOJO UJ BQULK PHDJK JCSURDJMDIOMKS OJ UJK MO SUS OXTQOHKS Y UJ BQULK IPQRKXDGK IKKC OJ OG KTQK. JKQHPGHOJTO, SO LUOMOJ OJIKJTQPQ VODJTO MDAOQOJTOS TDLKS MO PHDJKPIDMKS, OJ UJP SOIUOJIDP OSLOIDADIPHOJTO KQMOJPMP. OJ GP SOIUOJIDP MO JUIGOKTDMKS MOG MJP SO IKMDADIP GP IGPVO JOBPTDVK LPQP GP LQKMUIIDKJ MO LQKTODJPS. PG JUHOQK MO JUIGOKTDMKS NUO LPQP UJ SKGK PHDJKPIDMK SO GO MO-JKHDP IKMKJ. CPY VODJTO PHDJKPIDMKS IKHUJOS, LOQK SKGK IUPTQK JUIGOKTDMKS MDAOQOJTOS. KRVDPHOJTO, UJ SDHLGO IKMKJ UJ JUIGOKTDMK NUO IKMDADIP LPQP UJ PHDJKPIDMK LUOMO IKMDADIPQ SKGK LPQP IUPTQK PHDJKPIDMKS. UJ MKRGO IKMDBK MKS JUIGOKTDMKS NUO IKMDADIPJ LPQP UJ PHDJKPIDMK LOQHDTO SKGK MDOIDSODS IKHRDJPIDKJOS. LKQ GK TPJTK Y MOSMO OG LUJTK MO VDSTP HPTOHPTDIK, UJ TQDLGO IKMDBK TQOS JUIGOKTDMKS NUO IKMDADIPJ LPQP UJ PHDJKPIDMK OS GP UJDMPM MO IKMDADIPIDKJ HPS LONUOJP IKMKJ IPLPZ MO PEUSTPQSO P GKS VODJTO PHDJKPIDMKS.

GP OVDMOJIDP OXLOQDHOJTPG NUO PLKYP OG IKJIOLTK MOG TQDLGO IKMDBK AUO LQK-LKQIDKJPMP LKQ OG OSTUMDK MO GP PMDIDKJ MO UJ SKGK LPQ MO RPSOS SOJIDGGPS PG BQULK MO OJGPIO SOJIDGGK MO UJ RPITOQDKBQPAK. SD GP TQPJSIQDLIDKJ MO UJP UJDMPM BOJOTDIP AUJIDKJPG IDSTQKJ MO MJP OJ QJPH SDOHLQO SO GOO MOSMO UJP LKSDIDKJ ADEP, OJTKJIOS GKS LQDHOQKS SODS IKMKJOS MO UJP IPMOJP MO UJ IDSTQKJ MO MJP LKMQDP SOQ GP SDBUDOJTO:

TDPHDJPIDTKSDJPPMOJDDJP BUPJDJPBUPJDJPIDTKSDJP TDPHDJPPMOJDDJPPMODJP PMOD-JPBUPJDJP TDPHDJP IDTKSDJPBUPJDJPBUPJDJP TDPHDJPIDTKSDJPBUPJDJP

GP PMDIDKJ MO UJP SKGP RPSO LKQ OEOHLGK BUPJDJP PG ADJPG MOG SOBUJMK IKMKJ LKMQDP MOSVDPQ K PGTOQPQ TKMKS GKS MOHPS IKMKJOS MO UJ JUIGOKTDMK AUQOP MOG QOBDSTQK O DHLOMDQ GP GOITUQP IKQQOITP MO TKMKS GKS IKMKJOS SDTUPMKS P GP MOQOICP MO GP RPSO PJPMDDMP.

TDPHDJPIDTKSDJPPMOJDDJP BUPJDJPBUPJDJPIDTKIDJP BUPJDJP TDPHDJPPMOJDDJP PMOD-JPPMODJPBUPJDJP TDPHDJPIDTKSDJPBUPJDJP BUPJDJP TDPHDJPIDTKSDJP BUPJDJP

MO HPJOQP PJPGKBP IKJ GP OGDHDPIDKJ MO JUIGOKTDMKS. TQOS OGDHDPIDKJOS K HUGTDLGKS MO TQOS LUOMOJ IKQQOBDQ GP GOITUQP OJ GP SDJTOSDS MO UJP LQKTODJP PITDVP. KTQPS OVDMOJIDPS DJMDIPJ NUO OG IKMKJ OS UJP SOIUOJIDP MO TQOS JUIGOK-TDMKS Y MO PNUD NUO PG IKMDBK BOJOTDIK SO GO IKJKIP IKHK UJ TQDLGOTO K UJP TOQIDP.

- 5 Dado el siguiente texto cifrado en vinage hacer la prueba de Kasiski, explicar detalladamente como se obtien la clave y descifrar el mensaje. Sin clave no hay puntos.

| | | | | |
|-------------|-------------|-------------|-------------|-------------|
| YEMMLMIUQB | RWQNMZCQVS | HQSWMTWOSH | GCEMQHVHIE | EGXTSFIHOI |
| TLGZNIHLIF | IRCYMHGCEM | QHVHIROLNQ | FVPUEAICGR | RRAQNXZCFZ |
| SFQCNTEGQI | LZAFABKGIN | UCTAKBIMND | OTTHCEQUDU | GMPZNGYUNM |
| MTBHGFQOMQ | FCSSMROWQG | GGILPEXAVO | ZEHQRTXWSR | IHGNTBZUSHR |
| UECHVQHEEM | GNGCOSESXQ | MHTGQHPUED | XCTOPMFAYT | AKTBVGMERNV |
| CABPYOUEIU | WAXYFIVIFS | CSFUUKIEWY | SWANEICQGM | PUDTLFSEUR |
| YAEIIFRKUD | PHTKIEEWUL | HINCFIRFRT | KVCFHYOEBC | NOFFUOTXZK |
| OAEEMEEIZQR | HGYGNTAKBG | IMUSEQOWGE | XMDXXQZVTY | BTBLQGDYKE |
| OEWECAXCQN | XVCZNQCZOT | KKRBJYZIEI | NOAMHMLXQ | FRWNAQNMGG |
| CVINAUTGEH | IMQAGBTSFY | LMCBTQGYSM | CUXKQRVJCC | UXVROEFMS |
| BVVSFMMPEE | IHSAMFMLTV | KBNPUEMXHE | ZNWXQDBNGF | RRNQSKQDDCA |
| YWXEHBKRBW | NMMUQGBCY | PEGNQFZELY | OEMEIEYEMEI | GBGHVGSUEDX |
| ZPOZGIZLHA | PIPPYATBLQ | GQMMBUXAVC | FIHGNHZFSA | EFMZTZIRIRH |
| YQMITGOEWY | GNTKQAOMHM | CBWPRRXYON | BKCGDYCYIV | WQFTEHUCTA |
| QSADCYAMQE | OFTUDAEIRF | RTUDAVQQBQ | IJALBZTWOS | HGCEMQHVHI |
| ESBVVSGMWA | SLWPGRGQON | VQCGQILQPX | BKQVSHOOGW | EWQEMOOFWR |
| CEIDQMITQO | QIHUNTCTOP | MFMDXVKBNY | LMCBTCRRRC | ZANZCQVPKG |
| EVWFWSMWMA | EBGFAENUVT | UGBGIJMRTT | QGNQCZOTKK | RBWCEQEMWG |
| VRUKTBZQGV | RUOIMWEWAE | ODAVQNQVXI | OIGIWFNGCX | QNMCECUMZUC |
| TXCFNPUXEN | KKBNCMQIGI | GBSSLYATTV | SERUQTVMVS | EECZCECUCR |
| RUGSXVEWNH | YDNTUARRWC | ZTXAKGQIJD | OMMKBNWOZT | KQPIPPYATB |
| LQGRJCVAKI | CIACVNOLWO | OCSLXOMIPH | BMHHIMZQDH | IXQNNBKZVD |
| UDSXBTBWAYW | XEHBKRBWXX | SXKWSAGCMC | HVQQVHUBAK | IHWWELEEXA |
| RSPMZUCTUG | BGIWANNVQR | RYHMMXHEZN | HYHEBVVSQM | ZQRXVVSFEG |
| UNHIEWQSMK | ALQWBVVWMA | EWUFVFIEOF | IUDBVYVEFX | NCHVUOIECT |
| OPMFSUTVKB | NWIXOYQLOR | AQNKBKQBIM | XADXTGIPMH | MAEWUFVFIE |
| OFIUIFEWUL | ZIWBVRUGRT | KKZFSFAFBR | CSYVHMTVIT | UNHIPEVQUH |
| RMHMEMKGHR | VUQLVWFWTS | AQNKBKQBIM | PEZMPSEEXA | DXJKRBEKGE |
| XFKGGIGMSW | MWBPSXANII | TOYEMUNMMU | WFHYXAFIAC | ETUDTXLGBZ |
| WUYIGWCQVH | IEEEKQRVKI | QSUIUWPEGQ | NMMGZZMMYO | IZCHBHIELH |
| AQFTEHUSFW | UOYTUDEVMT | RRPIESXAGB | GESOUTBTCC | SMUBELMUBH |
| IZELLGZRXL | MSLWNCGVYE | SHVKBPEJMC | XAFSPSXUFB | KCFCELMCNI |
| NEHMYDAFPQ | CNGCPOTMUH | BWVADHVGGF | IFQSWMPCZM | HMTKQRZRX Y |
| ESBVUSAXCP | OLQPHRWCED | XXTCGICZAL | TCWAJIDMTK | KCAIHGNTAG |
| QHIHOITLGG | BBCDRBJQBH | GFQOMQFORW | NDAGAEFVXU | ATKIFIPMXM |
| EGTCGRGOQN | VQCFVFIZUV | TGCGMXMDXC | POZSFQCNTE | RRVHMFPHZWB |
| NIHLIFIGGC | IWUFBFKFAE | EJALBUGFNWU | QNEIFCOPYT | EEQESVRNMC |
| MIGGGEYZZB | UCFRGIZOVM | ECZSMUTBWF | SVRCOITKKC | AGCQRMUIGR |
| GOQNVXQCQGI | JMRXAEC AEV | GNWPHLREXQ | NTQPOLXCMM | BVCMPSPGUEG |
| HCZNXLMNLK | TWBTWUOGLG | IAEXQLTAFQ | FGUPEGIUSA | PUDEZSQBNH |
| SMCXVVSYEM | DEZQQBRWJD | OFWVCEEMQN | LQPCFHSFRT | VUQEMNMSWM |
| PHESXUGUIT | STMIZELXGQ | VJCOAWMNRA | EMALHCPOQI | FMSWWMQZNYH |
| ZAMQGBRWYZ | TBLQSFHYOI | KMUHEEHORB | BCSAVHMPXZ | QSASNDAKMI |

| | | | | |
|-------------|-------------|--------------|--------------|-------------|
| WBRXUSMQPH | NHYQSTUKGZ | EGALXKWZNH | YPNTTCCGVU | OAWMPOFILM |
| LTYWSGIHSA | LMPHVHIMPX | ACFQIYETHT | CWAJIDMTKK | CATUDAXTCP |
| BVUDCNINEH | MYDMHTGQHP | UPAWIFSERU | ACTLGBNTIX | IIMRHVHCOA |
| KMUWQIYJCE | QUWIEGQNM | GBHRUPEEUI | RBWWM DXVCG | RWXQCBZSIR |
| PUDNTXQZVQ | YDALIPCFEF | FAWMWBNGUP | EGIFSQRUML | TWVFNHODAG |
| BGSYTLADXA | QRRXLMLNLT | WCGGANWMB | TIHQNIITHV | GOKXKWIFHT |
| IPEZMPSFEX | KAVMPHRWJM | RTTCGVNRQS | BAFSHRUYOE | MEIYEXQRGI |
| VOAXIXAFWN | SPFYMDXZPO | ZGIUYOEI FSE | RUDSXIUCPM | UZCHVRFBBXY |
| UNTAHCEQUZ | DHXTSPYLEO | KMUMDY YQNM | W PQRW MQDBZ | KURRXQLGCD |
| ZRSUXCBBQD | YEMYATPKSY | QYZSTRGSFP | YUDHCPWQML | QCVCQQBNPGQ |
| NMMRCEYHAO | FIUFVFIEOF | IUDBPCEOFI | UQBQYZZTVF | CRRYXEQBTS |
| ZSMUCTLCLIA | SXQLHAXSVR | NQAFQPCNGC | POLAGFRGIZ | OVMRCEWOBZ |
| HXXCGMJADX | ZPOGIHFOGK | GGRRYXCBBQ | DYEMYAXFKG | GIHGNFPWZ |
| SXQVXPQHRI | MBEVQGGQIL | ZAMTCIAMIZ | DXCPOZMHAA | VQFCPSHEUF |
| WNSPYFMDXZ | POGIMYEWQC | RNTIDUGMPN | VQUQSIMEWS | MWMEGCPDES |
| XQSHLGBBQC | ZAWWCQGMPM | CBWPCPELSA | WWGBNPAGNT | XCFCGIXQLKV |
| CHUESGNTAG | QHIHOITLGH | EIMZUVTGCG | MXASXTCBGM | WADHVSIRIM |
| QLVWODYIGQ | NMWFSYGIPO | GLGFAEGXAT | NKBVHUPDXT | CGGILZALKQ |
| ACPYWYEGBCF | VEMXLXDCOP | EXMAFQPCNG | CPOTZGZNGC | ANTZUSNHYO |
| UTLCCARRNQ | HVNCFSNDOL | IOWASUOIWW | URRPUOAWMP | OCSFUEIBKR |
| VGUQNLQPHR | WCEUGIGBMM | GMRBZJQGBQU | XUGMGZTVOB | OTUKBBQTSXG |
| KCRCPELNOQG | QNCQIFASTU | KBBEWDUDHAC | RLEWQNNMUT | BVGMMNWGZNR |
| RFMCXXGDDGM | XUCHLGGCY | EDEIOCYIWG | LTGFAENEE | EQDSBEXQSN |
| IOWASUOIWW | FSYVHMMWMN | FVFIEOFISI | RHUZDHTKPE | IJMRTIEHVZ |
| UDSXWVBVVM | QCHVQHESUY | IGWCQVHIFA | FJKSAPCNRX | LGZMMMYOMQ |
| RCOPYUZHDMN | FVFIEOFINZ | RKUMLYQPOY | HYXMXVUOWI | MQCHURZRXU |
| XAMZCFMHGWU | OGLGZPSXUG | HVWQYIIFIW | WGBHURUEVC | GBPMUPXTUK |
| BBEWDUDHANC | FVCNOLWOO | FUOTXZKOAS | MQSMIPQBQJ | GELBQGGQIXA |
| SLCDIAXMMD | XARFVRWUPT | TGGHURUEUUC | PWQEXSRTVF | SQIWUNVCGB |
| GEMKUGIUUIO | YHUDTLFSGV | YUNMIURBRX | QSAWVBVHUP | SOMFFRVAPE |
| YTHQNGCANAN | YECRJCOIXV | VSQIMQDBUG | BGEWUOQUQZ | RGOKAKMPIY |
| XLXCMXVVFVJ | OSAFIURRXL | QIGBCDESNQ | IGIURVJYDE | GBGGRWNMNT |
| AQQVEXMSVW | PSYVHMRXVN | CFVCNOLWOO | FTYDOTCPBB | WYTAXTWQVH |
| UPOEIHIAAGC | ANXARSPMZU | CTYWSYPYHA | TKCPBEFBAK | MESEGOSESW |
| OSASMTARLQ | GFMNUOLNWB | PMIZAEMUSA | IFDIUWUCZE | YXPKQOSESOW |
| ZSBBKCCIJF | IWINMFIAGN | WMMBFBMNUT | UKBNGCXDNZ | CBGIFMSBVV |
| SFMNPEIZQH | RMHMSXTTBN | QMQUIGICZNW | ONUGQFOQHY | FRXQPHNWFM |
| PKQOSEEGAL | XKWZNNHYDNT | BCQGMQMDTM | PHEEUXSBBK | CCIJFIWINE |
| HMTMPTACBQ | SUFRTDGNQI | FEIMQMQZMH | AAVQNZNWCS | UBMPHRQIXE |
| VCNOQILZAM | KCFTEXMEGB | TONPMUTBWC | AVRIMCBTAS | AGCYAMQEOZ |
| IHFELMHCEQ | UGNXVNOPIJ | QPMQWFPYSYZ | TKMNCFHIEA | FQPCNGCPOL |
| IFMNGYZTAX | GZERUFNHIE | HVZUPOXAGZ | FMNUOIMRHV | HUXDXRCOUS |
| LMEEZKPBWI | YARXWSQILQ | SNTVOEIHLI | FIVWPEGQNM | MCQGMPPMDHC |
| POIITYALKQ | BGVUATKIOC | YIWGLTLGAV | RIMCBLQRRW | OYILUCSFTY |
| OIXMNQBJJX | ECWTSFXUZZ | XZPOGHCBEI | BKRBTUEAWM | NGVXCAAFQP |
| CNGCXAEAKH | VSJQPMQFOY | GIZIVQFWRR | XACHVWBZSP | UMBMPPHBYX |
| RBJQGBQUVU | GBQQBRYXMX | VUOWILAXNM | GLCSHQEEAK | UHMVZTXKQR |
| BRXQRGIOSA | IFBIMQQJNG | UZTXIOWASU | OIEMUHRTLA | CXAQGRVYBI |
| MMJOFXUCUX | AGQBQJXEMI | GZZIIEACMU | SCMYZSTYWS | PMYDATTARFB |
| XYUNTAGGCI | WUFBKCGRWX | QCBZHOPXID | ELLGZVIFYDA | VQQBBEIVANH |
| KGBRWNASVW | QBRNUEGMFS | AVRUOIHVAG | RTUDAGTCRP | EXQNTXQZVT |
| YBTBLKQNCU | QOOFXNSGEXQ | LTNCNHQUYQ | EMEYEXQGRG | IVQNHUYOEM |
| EIYEXQRGIV | QBRNUEGMFS | FINQNMIAQV | RWAAHKJSAX | UZUVTGCGMX |
| ASXVWBVBVXQ | NXARQVJCOO | EIVSEQCZAV | QOBBGVYEDXB | QRNWFMFSFVN |
| SPYFMSWMTB | NXXGELMWBR | RUXOLIOWAS | UOIWWUOYTU | DEVMTHRVGU |
| NTVQGBPMNAC | BVCQVXIOIT | VCRRMHMEEM | ZHEIGACBVE | CGILYIGIB |
| HRLQSBWLWCQ | IAGAGQPORR | YXRGIVGHIF | QNIZGGRRNM | RLMDOFIMBO |
| WECZYHGSVW | OCRPUOIIWWR | GRYXARKIFW | YMWAAVQFCV | RIEOGQWECLS |
| NDOLTGCGSL | OIHVGGQILZ | AMBKSAIHGN | TMUHEYWFUK | IJSYMMWAIWI |
| NTBVGMDTDXQ | FRPJXIXOWS | QIFMCTLGBN | WYZCBTNOFS | VDELWDFRWC |
| YILUCQBBROZ | AIITSNQCQN | MWFSOEMQSV | WODYIGQNM | TWNWYZCBMT |
| HNWLQGBWPS | FPCYIMIFO | WYTAGXTCCY | YETHDCFVSM | YOWMNCFXLU |
| DBUQGBFMIZA | EMUIASXQLH | AEINPYESXU | WSFXLMEGTC | TVKODAVIVC |
| EGYSUBWPPQH | ENDOXARFBF | UNLXYWSHRU | DEZQQBASUB | AKMCRNIHGN |
| TLGZNVWUEAL | LGFAENOOGB | GBTEFMTXZP | ONRNUCHLQB | DYCLANVCCR |
| PUEOMZCGNW | UEDXTTBNXM | QAXXTUWGMIP | EKMECASWUM | BMPHBYHADH |
| VFSFIOZAEI | GBMMGMELXG | QVJXCOAJCJO | PXCHIKINOZ | MHAAVQFCRW |
| JQCBNKQBTU | DAXTCBYEWQ | EGTCHRVGUN | TKKCAXLQSI | ZKANPIECHL |
| QBRWMUNLMP | HVHIGRTKKZ | NHYZIGICRR | MHMUKIEWYE | XQIGIINRMC |
| ZARCTOPMFS | UTVKBNEXQI | GIPCPXSUFB | KCBCELMNBV | IIAEGUNHIE |
| WQSJAREWVO | AXIEEVZGSD | YFYEKUKBNR | FMSBVVSFMM | PEEIRFBXYU |
| NTTCCGCVIFE | BVCGOEWFEEK | QCBNFWUYEGC | FCGMYZEGVH | CEQCXMXBKC |
| AMHMEGMNSK | XLQMHHVSEQ | CZAEQFPWPMU | XMNVVSRWJD | OUIDZRUEQE |
| EKQRBURUPEG | QPOHVUOIEO | WOAMHMYJCK | NNKOMNBVCI | EEWULZCCBV |
| RUOUTLQGRE | JMRXICZCVC | ZCBXKCKQIOZ | AFWNSPYFMM | XVUOWILMAV |
| BWSPSGAAEII | EHVZUPOKLG | ZNWCZTXAKG | QIFMPKWVSV | RUQNXTTBNQ |
| JALBKKGCVI | ZIVWSIRGIP | IYQEOCELMMM | TAFSHRNUPH | LGDBPCBEIB |
| KRBWYXCHLQ | BNHYZIGIWF | NGCXGNIPWA | EKGGEVWFWSM | WMPTZCZNIJ |
| DMBTOSGMIZ | IGIRIRHYFE | KUKBNVFMBS | VVSFMMPENV | RCYMJQPMQF |
| CRMHUCBITS | YWCSUBMPHR | HYNIWVCEHI | YXGKCRCAJI | DMTTGBHRUY |
| IGWCQCVHIQV | BBCZNJIDMT | KKCAHYQNEI | ESFTYBTBLK | QBWJGEWMJO |
| OILGNTMPNV | QUPETRWGGI | KGELMROEIF | MFHMOYQYF | IHVKNBNHYXO |
| LMULGVYYOL | LGZNVJDOMG | KBNWVAMITG | HNWUXGNVQG | PSXANXARIR |
| HYZTXVGFQFM | ZQRXVVSFWC | SNBNKQNHIE | DXXGBQMYZD | HLGGHTIEIV |
| QGBRRFMMHT | GQHPUYEGAC | XRVUEILMGB | PIHFRTINQB | HIZAWPWAEE |
| ODAVQNUHEH | UNTINQBQCQ | NSWFSYVHMM | ICGRRMHUCB | ITZNVCOZTAX |
| KGQIJDOMMK | BNWMUSXMPQ | HIHFRTINTV | RUXDXMUHNG | IXEVCNOZIH |
| EACMTOCYYP | ETKVINVWAM | HNWZNPCLAW | WTRRPUOAWM | POCIJFIWQE |
| OCYYPEVIO | VELEEEIGGC | IWUFBKRNH | XQLVWFWTSR | QNXBKQBEFM |
| LMMTBNVWGA | EYWWRVWAMI | WPSAXYPEEI | OODYCZAKQC | RRPYOTNZCW |
| AGFGYXVFCY | EMQNSQOOFV | CNOLWQOOFVH | MTRZPOZEFS | OWMCKYELMC |
| BWPSFWINRX | TCBBXUOIHV | PFNQYENKIO | WGSWANWZKO | YRLMTXAPFN |
| XLMLNLKTWCX | IDLTNKUHV | QSEIHWTYLM | CTBQFPWIGA | MZQRRIFXGA |
| ZQURRYFIVI | UQUEOYSXOW | BQEYPIVQCB | CEAUNBTBSP | MYZTHAFCTFP |
| IEEKZQFRWK | GEAIAIAIFF | EQBQARWQCDV | XVFSEIZQRG | KKOCSLATKW |
| NOQSYEPXZQ | RRWJQRMITG | HMHFEKUMUSA | IMFOLBGLGS | MKAJCGIFXY |
| PELAQBAYYE | TKIUWITYYZT | XOGBRVUOIH | VAHVHQNNV | CUEHDELXQ |
| BFEVULBLCR | CSLPEEIPHR | EMUQNMPCPS | JUEGPCUNRF | MTTZGOAAAA |

6 Del siguiente texto cifrado con Hill.

- Dar la matriz de cifrado explicando paso a paso como se obtiene incluyendo congruencias involucradas.
- Dar la matriz de descifrado explicando como se obtiene
- Dar todo el texto descifrado.

IO DS BM LY CB IW CO HI AD EG GG ZC AJ CB EQ FF YP QU LE SC YY VM TK QU MK JD MK
CV DM XW CV YP OE KR AL OA WH KA CT GO KO LL WF KC MK YA PB AF ON GJ EE YP PM

ZF AL GB IZ TK VG MK ZW XA UI SK GG TJ GJ ET CB ZW XS RG GG XP WO AS AN VG WH QU
 FB KB FC WO GO UP TK CV CI BM EW HI OK ZF EE GJ CV ED EG QV YI ED MS KO DY NA SN
 EG AX WH QU FB KB FC DS BE XU LS YA VR CV GJ KC ZW BE XU LS WQ RY WQ RY ZW BE XU
 LS WQ RY KB QJ ET IZ UJ OI PQ WQ RY ID ET IZ UJ OI PQ KB CB MK JQ AJ UB YK CV LY XU
 AD ON AN XW YP CB DS VM DC FG LY FG WF GG BM GK QU BE PI MK DM DJ GO KH KB CD
 AK GO EC UP CV LL KU DC UP ZA ZF WF KC YC ZW AD IZ UJ KC CB DS NA VG YN ED IZ EQ
 EW VM DC YK DU DS QM BM OS DS CM MF RY YP AS CV FC EW EW DC SM XL AS CV FC HC
 EW CV VT YK QJ GO GV GJ WF HI DU VR GO MP KB UJ AS XL ER DS IM SR ET IZ UJ EG KH
 YI KH ER DS WQ AQ KH IK PQ PT OA MK KB YI KH QW PT QQ MK KB IK PQ QU IO XU KS LB
 GJ QJ KC IY GJ CV IY KH EE XA NA FG EE QU XH MK DU TJ MC ZF MK CD KC MK QU KR HI
 OK ZF IZ EQ CT IR NA MK MI AS JD YP ET IZ UJ CQ VR CV GJ OI PQ KB CO VM IP GO FG LY
 FG GH CV AS EE YI ZE QU FB KB FC CT EL KC MK CB DS NA VG SR ET FG OK RL KC KU IC OI
 KL KC OA KB VG HC EW MK EU EG ZW LY TO KH CD KC KU AQ KS MT EG KO BN IM AQ KO
 MT GW AM ZF IM WK AW GV KC WZ DM MK EG QM ZW EW NJ CA OI US WU ZW WO MX WH
 DM BE PI QU OK LX IZ BI MK LL CO IP QX GG EW HI SK GG NA IO SR KC HC EW YA VR CV GJ
 KC EU EG MW AW GV KC CM WH MK EW DS FG RQ TJ KU IP DQ AJ SN KC WH YY PB QY OE
 CT GO AL QI GU CV ON IW YV XU HO UC BE BN MP DS ZW TK WQ YN QJ CI NA CT YP CM GJ
 RY DS HC EW CT IR NA YP CB DS RT FG GY FG CO IC KO YT SA YP WO MK GO UP MI DS RY
 DS AD SA SR KC YV KH EG GG VM YN KC IW KC KS GY QP RY JO AJ CO VM DC UP ZA ZF AL
 EL KC MK XS KH UP ED LL AL OU KZ KC CV ZW DS ZI DY EC UP HC MI OE MK LL OU RU PI
 VG DS DC YK DU DS QM BM OS MI KB IM IP DQ AJ SN GJ GO YK DU DS QM BM OS CV YP QU
 FB KB FC DS HC EW YA VR CV GJ KC EU EG MK KS PM MK DM CV FC RG MK KB EG CB XU
 AD UP DS RG EQ XA UI AJ UB EG UP YP OE KR AL OA WH KA CT GO KO LL CO HI OK ZF EE
 DS LY NS ED OI NA KB IW GJ MX ED IW GG TJ MK IY WU JD AL OU FC XU KS LB AN XW QU
 IO KZ CV TK VG DS WK US SM QJ QY DS ZF KZ GJ DS ZW KS GY AE QU IO KZ CV TK VG BP
 YP JD AL OU FC QU VM IP KC YV KH EG GG VM GM ST KU PU YA IO ZX OS IO QU IO QU XC
 GO SA RG EQ DS MK LY OS SM CB ZI UU IX WU KB OS SM CB ZI UU CO ZF XU MK LY QU FB
 KB FC UI DC UP ZA ZF AL GO WS VR CV KC IE AM KS PQ QU GY PM ZF EE KS AD CV MI TG
 AQ SM IM WO OS CV IR UP DS IE AM MI MK DM CV YP MK BE EC KN GO FC FG WH QU JH KC
 IY EG YY DC KO JY KU JN AN DS WH QU FB KB FC MK GB IZ MF AL KC ZW EW VM QU CB DS
 NA VG CT IW ZE DS GH PI LA NS IM DC UP ZA ZF CO EW MK ZW KS GY LE XU AJ GJ KU VM
 YL OH EE CV AW KC IW GJ EG AL UP EW PM IR ST KH QU IO KB YP AS CV FC LL KZ CA CV
 MI UP WH QU RG WS VR CV GJ KC CV YP OE KR AL OA WH KA CT GO KO LL CO HI OK ZF EE
 DU LP AY SA XO ZK MK CV DM QC KO LL YI AL UP MK LE RW XU ZF MK

Teniendo en cuenta que CM WH MK EW DS FG RQ TJ KU IP DQ AJ SN KC WH YY PB QY OE CT
 GO AL QI = cuales se derivan de estructuras algebraicas de codig