

Leyes Gases #7

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Resumen

Ñawpa pachaka kay ñukanchik kuchu urkuka puñuysikimi kashka. Shinashpa mana kuchu urkukunapash yakuta charinchi. Shuk puncha urkukunapa hatun yaya yakuta tukuy urkukunaman rakikukpi, kay ñukanchik kuchu urkukuna puñukushka nin. Chay urkuka puñuysiki kashkamanta mana yakuta charinchi. Mana puñukushka kashpaka yakuta charinmanmi karka. Chay Mankiwa, Katitawa sikikuna chay Chullku wayku, wichikuna, hutku pashakuna, kay tukuykunami yakuta chariman, mana puñuysiki kashpaka.

Palabras Claves: Ashcu, wambra, llacta, inti, pacha.

Introducción

Ñawpa pachapi, shinami ñukanchik yayakuna nik kashka. Mama Tungurahua urku nishka, yaya Chimborazowan sawarishkami kashka nin. Shinami ishkantikpura kawsakushpa, shuk punchaka, mama Tungurahuaka hatun Kullay urkuwanmi puñunakushka, yaya Chimborazopa washakunapi. Chay Kullay urkuka, imamantapashchari Altar shutiwanmi mishu tsalakunaka riksinkuna [1, 2].

Shinapash kariyashka Chimborazoka, mana ima pakashka sakirinchi Inti Yaya ukupika, imashina paypak warmi shuktak urkuwan kawsakushkata riksik chayarkami. Chayta yachashpaka, paypak warmitaka kaspiwanmi wañuchishpa tukuchisha nirka. Yaya Chimborazoka hatun urkumi karka, ishka may suni rikrayuk kashpa, shuk manñamanta chayshuk chinpaman waktakllami kashka [3].

$$\nabla^2\psi(r) + \frac{\hbar^2}{2m_e} [E - V(r)] \psi(r) = 0 \quad (1)$$

Kaytami rurayman karka millay urkukunataka; shinapash, utka utkami mana pinkak Kullay urkullatak, Carihuayrasopash warmita mitsankapak chayashkakuna [3]. Shinapash, piñarishka kariya, paykuna shamushkata mana rikusha nirkachu; chayllapitak, hatun kaspita hapishpa, Kullaytaka llapishkallami. Chayshuk urkutapash manchanaytami waktashka, pakishka tullukuna illakshina sakinkapak. Shinami ñawpa yayakuna ñukanchikta yachachishka, imamantami Kullay urkuka llapishka sakirishka; shinallatak imamantami Carihuayrasoka, paypak umamanta, chakikamami hatun

pakirishka chiktakunata charin [4-7].

$$r^2 \frac{R''}{R} + r \frac{R'}{R} + \frac{2m_e r^2}{\hbar^2} \left[E + \frac{Ze^2}{r} \right] = -\frac{\Phi''}{\Phi} \quad (2)$$

Ñawpa pachapi, mama Tungurahua, paypa kusataka manchanaytami kamik kashka, mana paykunashina yuraklla churikunata charishkamanta. Chaymantami mama Tungurahua, tyukashpa kuzuta, kushnita paypak wiksapi tinpuchishpa shitak kashka [4].

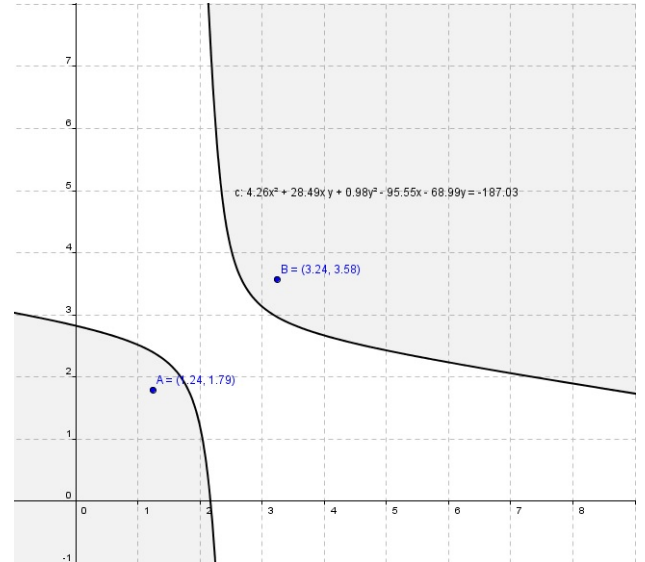


Figura 1: Ña samashka kipaka

Kutin yaya Chimborazo (ec.1), paypak ukupi kariyashpa, ama shina paypak warmi millay tyukunawan katichun sakirkachu. Chaymantami, shuk sumak kuitsaka paypak chinkarishka michikunata mashkashpa chayta richun sakishpa. Shinami kuytsaka rurarka (fig 1). Chayta purikukpi, paypak chakikunapi shuk sumak, yuraklla kara purututami tarishka. Payka purututa hapishpa, sumakllata

rikushpa, apipak chunpi ukupi, warmipak wiksapi sumakllata kunurichun sakishka. Chaypika Pachakamakmi rikurishka [1, 2, 6-8].

Experimento

Shuk puncha, shuk machashka runa raymimanta tikramukushka Tutami kashka Machashka runaka mayta rishkata mana rikushkachu Chaymanta ñitkashpa, waykuman washikushka Urmashpaka shuk yura rikrapa warkurishka sakirirka Tukuy tuta, manchaklla kaparikushkarkami.

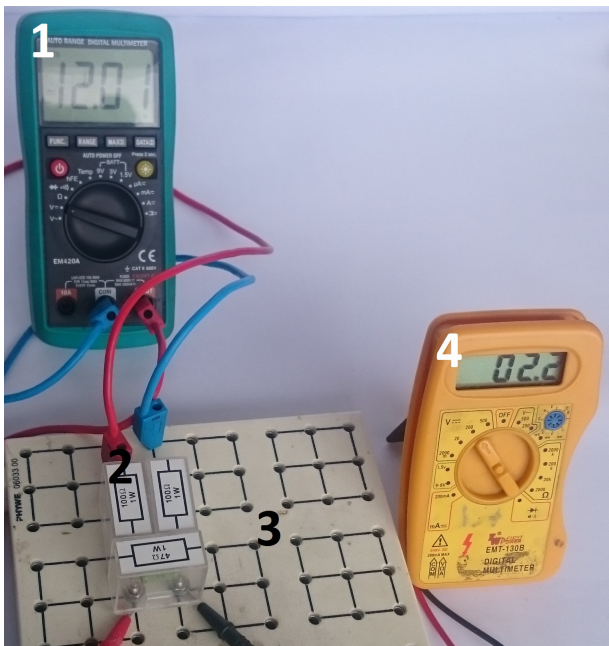


Figura 2: (1) Inti achikyamukta rikushpaka ;(2) hawa wichiyan kaspipi ;(3) kashpaka shuk wakcha runaka;(4) pakalla rimashkatami kashna nikta uyarka

Yanapaychik, Pi mana uyarkachu. Machaskaka sinchita charirirkami. Ama chaypi wañunkapak paypak yanapakkunata mañarkami machashkaka achka shaykushka shina warkurishkami pakarirka ma achiyarikpi (fig. 2), inti achikyamukta rikushpaka, machashkaka manchanayta shaykushka kashpa, urayman rikurka paypak chakika iñullamanta mana pampaman chayashka karka.

Paykunaka yarikaywan wañukushpami, imallatapash mikuchunpishchari nishpa allimanta punkuta paskay kallarikakuna; shinami ukuman yaykurakuna. Yanuna ukupika kara mutishkami tiyakushka hatun mankakunapi. Chayta rikushpaka yarikaywan kashpaka mikuy kallarikakunami. Ña wiksa paktakta mikushka kipaka, wasiyukunatami mashkay kallarikakuna. Mana ima riku-

rikpika shitashka wasi shinami rikurirka. Chay kipaka hawa kawsanamanmi wichiyrakakuna.

Runakuna [nm]	Machaskaka sinchita		
	Wasi. 1	Wasi. 2	Mana
0.05	15	14	14.5
0.1	31	29	30
0.15	46	44	45
0.2	60	60	60
0.25	74	75	74.5
0.3	90	90	90
0.35	105	105	105
0.4	120	121	120.5
0.45	136	136	136
0.5	153	151	152
0.55	171	166	168.5
0.6	186	180	183
0.65	201	202	201.5
0.7	218	217	217.5
0.75	232	232	232

Cuadro 1: Ña amsa karpika manchanachikushpallatak

Ñawpa pachapi, shuk may sumak hatun wasipi kimsa runakuna kawsashka nin. Paykunaka achka sara takikunata charishka, charishkapashmi tawka piña allkukunata, wasita rikuchun, muyuchunpash. Shuk kutinmi, ishkay wakcha runakuna mana imata charishpa, mana imata mikuy tukushpa, ñanta hapishpa puri kallarikakuna (tab. 1). Purikushpa, purikushpa, ña shaykurakuna, chaypi samayta kallarikakuna. Ña samashka kipaka, chinpa urku sikipi shuk pakalla nina rupakukta rikurakuna nin.

Ña amsa karpika manchanachikushpallatak chayman kallparkakuna, chayashpaka punkupi waktarkakuna; shinapash mana pi punkuta paskanaman llukshirkachu la pakarimukukpimi alli, alli rikurakuna mana runa kashkata, kaykunaka kimsa charik pumakunami kashka karka, kaykunata rikushpaka kaspikunata, sawllikunata hapishpa, kay pumakunata wañuchishpa shitashka nin. Shinami chay mana imata charik wakcha runakuna achka chariyuk tukurakuna.

Resultados y Discusión

Ñawpa pachapi, shuk may sumak hatun wasipi kimsa runakuna kawsashka nin. Paykunaka achka sara takikunata charishka, charishkapashmi tawka piña allkukunata, wasita rikuchun, muyuchun-

pash (ec. 2). Shuk kutinmi, ishkey wakcha runakuna mana imata charishpa, mana imata mikuy tukushpa, ñanta hapishpa puri kallarithkakuna. Purikushpa, purikushpa, ña shaykurkakuna, chaypi samayta kallarithkakuna. Ña samashka kipaka, chinpa urku sikipi shuk pakalla nina rupakukta rikurkakuna nin.

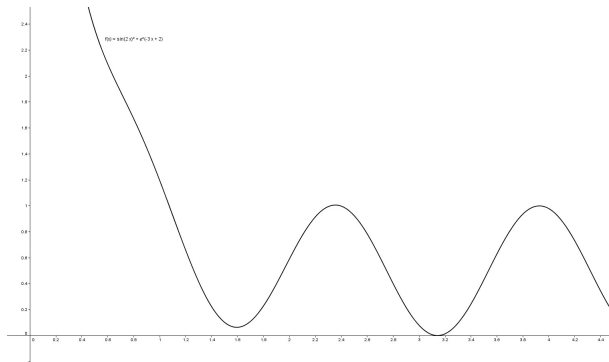


Figura 3: Ña wiksa paktakta mikushka kipaka, wasiyukkunatami mashkay kallarithkakuna. Mana ima rikurikpika shitashka wasi shinami rikurirka.

Paykunaka yarikaywan wañukushpami (fig. 3), imallatapash mikuchunpishchari nishpa allimanta punkuta paskay kallarithkakuna; shinami ukuman yaykurkakuna. Yanuna ukupika kara mutishkami tiyakushka hatun mankakunapi (tab 1). Chayta rikushpaka yarikaywan kashpaka mikuy kallarithkakunami. Ña wiksa paktakta mikushka kipaka, wasiyukkunatami mashkay kallarithkakuna. Mana ima rikurikpika shitashka wasi shinami rikurirka. Chay kipaka hawa kawsanamanmi wichiyarkakuna. Ña hawa wichiyana kaspipi kashpaka shuk wakcha runaka, pakalla rimashkatami kashna nikta uyarka.

$$\lambda \approx 622,72[nm]$$

Shuk puncha, shuk machashka runa raymiman-

ta tikramukushka. Tutami kashka. Machashka runaka mayta rishkata mana rikushkachu. Pi mana uyarkachu. Machaskaka sinchita charirirkami. Ama chaypi wañunkapak paypak yanapakkunata mañarkami. Machashkaka achka shaykushka shina warkurishkami pakarirka. Ña achiyarikpi, inti achikyamukta rikushpaka, machashkaka manchanayta shaykushka kashpa, urayman rikurka. Paypak chakika iñullamanta mana pampaman chayashka karka.

Conclusiones

Yaya Imbaburaka kashnami kashka. Wakrakunatami ñawpa pachapi sapan wasipi charik kashka. Chayshuk taytakunaka charishka nin shuk kuyashka wakra kashka nin; shuk sumak shutiwan wakrataka shutichishkakuna nin. Shina wakrata shutiwan kayakpika payka ninanta kallpashpa shamuklla kashka nin.

Ña yaykushkalla nin chay punkuruku paskarikpika ña yaykukukpika ashta ukupi patsak achka manchanayay hatun allparuku kashka nin; pay kurikunawan hatun allparuku ashta ninan ninan hatun allparuku; ashta kiwakunapash paymanta kuyukuk, runakunapash kaymanta chaymanta ñuñuta kapishpa ashta hatun allparuku kashka nin.

Kanchaman llukshishpa rikukrikpika ashta kurilla kashka nin, kurilla miklla huntashka nin taytakuka. Chayka tukuylla chay killimsa kanllaman llukshishpa rikukrikpika, kurilla kashka nin. Chayta ashta shinallatak ashta pay killimsapachaka maypishi hicharayakushkallami nin, shina kurichu karkari. Payka kay kullkita hapishpaka kurintinmi wasiman tikrashka nin.

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