

FIZIKA

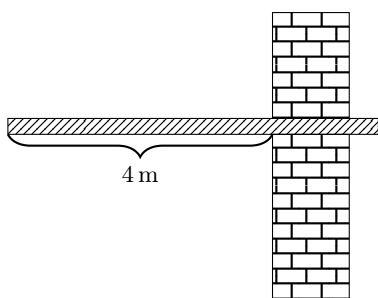
1. Yerdan gorizontga nisbatan α burchak ostida v_0 tezlik bilan otilgan jismning uchish vaqti ifodasini toping.

- A) $\frac{2v_0 \sin \alpha}{g}$
- B) $\frac{v_0 \sin \alpha}{g}$
- C) $\frac{v_0^2 \cdot \sin^2 \alpha}{g}$
- D) $\frac{v_0^2 \cdot \sin 2\alpha}{g}$

2. Gorizonttal otilgan jism tezligining yo'nalishi 30° ga burilgan paytda uning tangensial tezlanishi (m/s^2) nimaga teng bo'ladi?

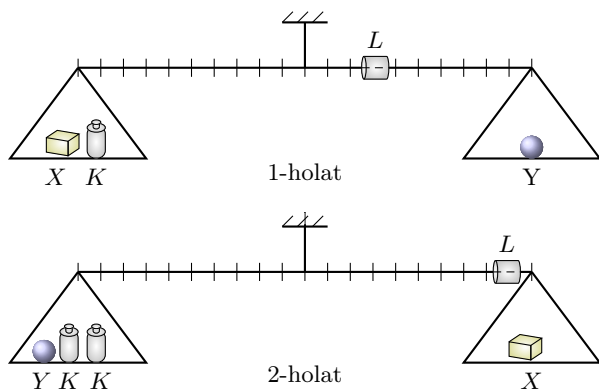
- A) 5
- B) 8,7
- C) 10
- D) 2,5

3. Po'lat to'sinning massasi 400 kg, uzunligi 5 m ga teng. U devorga gorizonttal o'rnatilsa, devorga ta'sir qiluvchi kuch momentini ($N \cdot m$) toping.



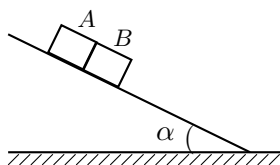
- A) 10000
- B) 16000
- C) 6000
- D) 8000

4. Rasmdan foydalanib K jismning massasini (g) toping. Bunda osma tarozining siljuvchi toshining massasi 2 kg.



- A) 800
 B) 400
 C) 1000
 D) aniqlab bo'lmaydi

5. Teng massali A va B jismlar qiya tekislikdan qanday tezlanish (m/s^2) bilan tushadi? Bunda $\mu_A = 0$; $\mu_B = 0,5$; $\sin \alpha = 0,6$.

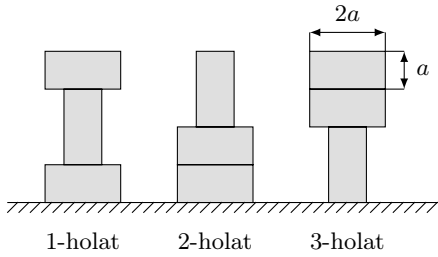


- A) 4
 B) 6
 C) 7
 D) 5

6. \vec{p}_1 impulsli 1-sharcha \vec{p}_2 impulsli 2-sharcha bilan elastik to'qnashdi. 1-sharcha harakatini \vec{p}_3 impuls bilan davom ettirgan bo'lsa, 2-sharchaning keyingi impulsi quyidagilarning qaysi biriga teng?

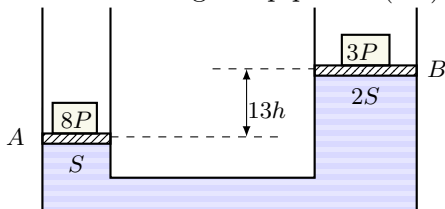
- A) $\vec{p}_1 - \vec{p}_2 - \vec{p}_3$
 B) $\vec{p}_1 + \vec{p}_2 - \vec{p}_3$
 C) $\vec{p}_1 + \vec{p}_3 - \vec{p}_2$
 D) $\vec{p}_3 + \vec{p}_2 - \vec{p}_1$

7. Teng massali 3 ta brusokning 3 xil holati rasmda tasvirlangan. Qaysi holatda sistemaning potensial energiyasi eng kichik?



- A) hammasida teng
 B) 3-holatda
 C) 1-holatda
 D) 2-holatda

8. Rasmda tasvirlangan gidravlik pressning A va B porshenlari vaznsiz bo'lib, ular o'zlarining ustiga qo'yilgan yuklar sababli muvozanatda turibdi. Agar yuklarning o'rni almashtirilsa, porshenlarning sathlari orasidagi farq qancha (cm) bo'lib qoladi? Bunda $h=4$ cm.



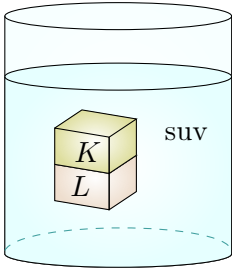
- A) 8
 B) 12
 C) 16
 D) 4
9. Prujinaga osilgan yuk 5 cm amplituda va 2 s davr bilan garmonik tebranmoqda. Yukning 10 s da bosib o'tgan yo'lini (m) toping.

- A) 0,75
 B) 0,5
 C) 1
 D) 0,2

10. Moddiy nuqta $x = A \sin \omega t$ qonuniyat bo'yicha garmonik tebranmoqda. Uning maksimal tezligini toping.

- A) $A^2 \omega$
 B) $A \omega^2$
 C) $A \omega$
 D) $\frac{A}{\omega}$

11. Bir-biriga yopishtirilmagan K va L jismlar suvli idishda rasmdagidek muvozanatda turibdi. Quyidagi fikrlarning qaysilari to'g'ri?

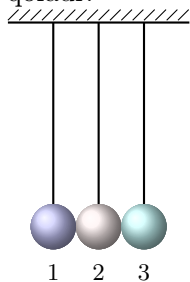


1. K jismning zichligi suvnikidan katta.
 2. L jismning zichligi suvnikidan kichik.
 3. K jismning zichligi L jismnikidan kichik.
- A) 2 va 3
 B) 1 va 2
 C) 1 va 3
 D) barchasi
12. O'zgarmas massali ideal gazning temperaturasi $\frac{V}{T} = const$ qonuniyat bo'yicha 8 marta oshdi. Gazning bosimi qanday o'zgargan?
- A) 8 marta ortgan
 B) 2 marta ortgan
 C) o'zgarmagan
 D) 8 marta kamaygan
13. Izobarik jarayonda gazning zichligi va ichki energiyasi bir vaqtda ortishi mumkinmi?
- A) *mumkin emas*
 B) *ularning nisbati doimiy qolsa – mumkin emas*
 C) *mumkin*
 D) *ularning nisbati doimiy qolsa – mumkin*
14. Gazning bosimi 96 % ortsa, ichki energiyasining zichligi necha marta o'zgaradi?
- A) 1,2 marta ortadi
 B) 1,96 marta ortadi
 C) 1,4 marta ortadi
 D) 1,44 marta ortadi

15. 2,2 kg geliyni 6 K ga izobarik isitish uchun qancha energiya (kJ) kerak?

- A) 53,4
- B) 76
- C) 68,5
- D) 41

16. Cho‘zilmaydigan iplarga osilgan 3 ta metall sharchaga manfiy zaryad berilsa, qaysi sharcha qo‘zg‘almay qoladi?

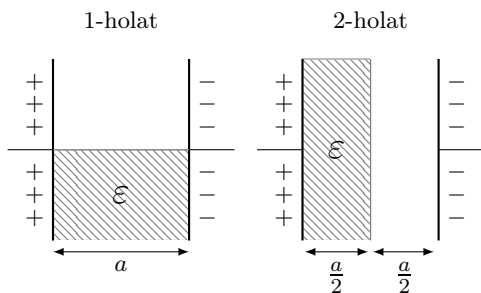


- A) 2 va 3
- B) faqat 2
- C) faqat 1
- D) 1 va 2

17. $-2e$ zaryadli ion bir jinsli elektr maydonda harakatlanmoqda. Lazer nuri ta‘sirida ion bir elektronini yo‘qotsa, uning tezlanishi qanday o‘zgaradi?

- A) 2 marta kamayadi
- B) 1,5 marta ortadi
- C) 2 marta ortadi
- D) 1,5 marta kamayadi

18. Rasmda 1-holatdagi kondensatorning sig‘imi C_1 , ikkinchisniki C_2 va $\varepsilon = 2$ bo‘lsa, $\frac{C_1}{C_2}$ ifodaning qiymatini toping.

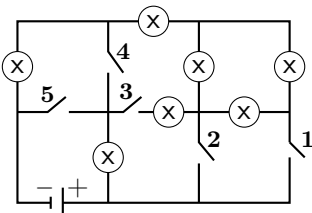


- A) 8/9
- B) 9/8
- C) 8/17
- D) 17/8

19. Kuchlanish tarmog'iga ulangan simdan ajralib chiqayotgan issiqlik quvvati 18 W ga teng. Bu simning o'rniga ko'ndalang kesim yuzi 1,2 marta katta boshqa sim ulansa, unda qancha quvvat (W) ajraladi?

- A) 12,4
- B) 15
- C) 21,6
- D) 27

20. Qaysi kalit ulansa, eng ko'p sondagi lampochkalar yorug'lik tarqatadi?



- A) 1
- B) 4
- C) 2
- D) 3

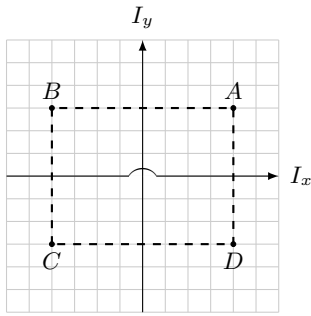
21. Vakuumlil diod toki to'yinishga erishmagan. Agar diodning anod kuchlanishi 4 marta kamaysa, dioddagi tokning quvvati necha marta kamayadi?

- A) 24
- B) 8
- C) 16
- D) 32

22. Qarshiligi $0,8 \Omega$ bo'lgan simdan ramka yasalgan. Ramka orqali o'tuvchi magnit induksiya oqimi 4 s ichida 6 Wb dan -10 Wb gacha tekis kamaydi. Ramkada vujudga kelgan tok kuchini (A) toping.

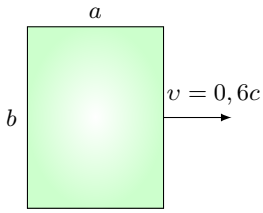
- A) 0,5
- B) 5
- C) 20
- D) 2

23. Koordinata o'qlari bo'ylab I_x va I_y toklar oqmoqda. $(a; b)$ koordinatali A nuqtadagi magnit induksiya nimaga teng?



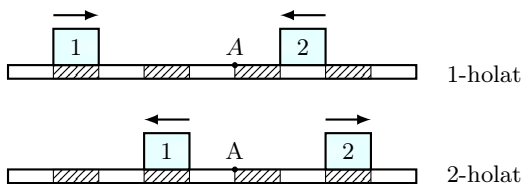
- A) $\frac{\mu_0}{2\pi} \left| \frac{I_x}{b} - \frac{I_y}{a} \right|$
- B) $\frac{\mu_0}{2\pi} \left| \frac{I_x}{a} - \frac{I_y}{b} \right|$
- C) $\frac{\mu_0}{2\pi} \left| \frac{I_x}{a} + \frac{I_y}{b} \right|$
- D) $\frac{\mu_0}{2\pi} \left| \frac{I_x}{b} + \frac{I_y}{a} \right|$
24. O'zgaruvchan kuchlanish tarmog'iga kondensator va induktiv g'altak ketma-ket ulangan. Kondensator uchlari orasidagi kuchlanish amplitudasi 12 V, g'altakdagi 8 V bo'lsa, tarmoqdagi kuchlanish amplitudasini (V) toping.
- A) 20
- B) 4
- C) 6
- D) 10
25. Quyoshning gorizontdan balandligi 30° dan 45° gacha ortdi. Yer sirtining yoritilganligi qanday o'zgargan?
- A) $\frac{\sqrt{3}}{\sqrt{2}}$ marta ortgan
- B) $\frac{\sqrt{3}}{\sqrt{2}}$ marta kamaygan
- C) $\sqrt{2}$ marta ortgan
- D) $\sqrt{2}$ marta kamaygan

26. O'lchamlari $a=5$ m, $b=10$ m bo'lgan to'g'ri to'rtburchak shaklida jism yasalgan. Fizik olim harakatdagi jismning sirt yuzasini (m^2) o'lchaganda qanday natija oladi?



- A) 30
 B) 18
 C) 32
 D) 40
27. E energiyali fotonlar oqimi chiqish ishi 3 eV va 5 eV bo'lgan 2 xil metall sirtiga tushmoqda. Ulardan uchib chiqayotgan fotoelektronlarning maksimal kinetik energiyalari mos ravishda E_1 va $\frac{E_1}{2}$ ga teng bo'lsa, E_1 ni toping (eV).
- A) 7
 B) 5
 C) 4
 D) 6
28. Litiy ${}^7_3\text{Li}$ yadrosidagi nuklonlarning solishtirma bog'lanish energiyasi 5,4 MeV/nuklon. Yadroning massa deffektini (kg) toping.
 $1 \text{ MeV} = 1,6 \cdot 10^{-13} \text{ J}$
- A) $6,05 \cdot 10^{-14}$
 B) $0,96 \cdot 10^{-29}$
 C) $6,05 \cdot 10^{-12}$
 D) $6,72 \cdot 10^{-29}$

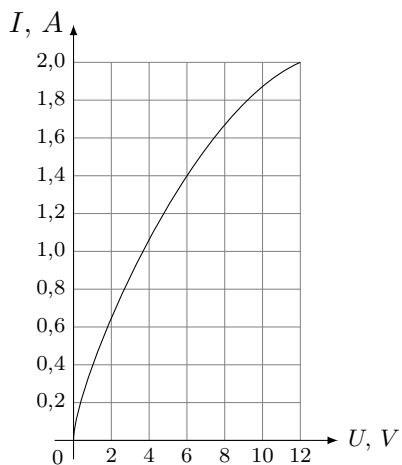
29. Ishqalanishsiz tekislikda doimiy tezlik bilan harakat qilayotgan ikki jismning mutloq elastik to'qnashuvdan oldingi va keyingi oniy vaziyatlari rasmda ko'rsatilgan. A – to'qnashuv nuqtasi bo'lsa, quyidagi mulohazalarning qaysilari to'g'ri?



1. To'qnashuvgacha birinchi jismning tezligi ikkinchisidan katta.
2. To'qnashuvdan keyin ikkinchi jismning tezligi birinchisidan katta.
3. To'qnashuvgacha birinchi jismning tezligi ikkinchisidan kichik.
4. To'qnashuvdan keyin ikkinchi jismning tezligi birinchisidan kichik.

- A) 1, 2
 B) 2, 3
 C) 1, 4
 D) 3, 4

30. Rasmda qizdirgich lampaning volt-amper xarakteristikasi tasvirlangan. Undan 1,4 A tok o'tayotganda tokning quvvatini (W) toping.



- A) 7,6
 B) 6,9
 C) 8,4
 D) 6,3