

۲۰۶ ← مثلث‌های متشابه

گزینی ۱

۲۰۷ ← $q_1 = 1$ $q_2 = 7.5$ $P_1 = P_2 = 10$ $\rightarrow \frac{1}{P_1} - \frac{1}{q_1} = \frac{1}{P_2} - \frac{1}{q_2} \Rightarrow P_1 = 10$

گزینی ۴ $\rightarrow \frac{1}{P_1} - \frac{1}{q_1} = \frac{1}{P_2} - \frac{1}{q_2} \Rightarrow \frac{1}{10} - \frac{1}{1} = \frac{1}{P_2} - \frac{1}{7.5} \Rightarrow P_2 = -10 \text{ cm}$

۲۰۸ ← مثلث‌های متشابه

۲۰۹ ← $P_1 = 40$ $P_2 = 30$ $P_3 = 20$ $P_4 = 10$ $P_5 = 5$ $P_6 = 2.5$ $P_7 = 1.25$ $P_8 = 0.625$ $P_9 = 0.3125$ $P_{10} = 0.15625$ $P_{11} = 0.078125$ $P_{12} = 0.0390625$ $P_{13} = 0.01953125$ $P_{14} = 0.009765625$ $P_{15} = 0.0048828125$ $P_{16} = 0.00244140625$ $P_{17} = 0.001220703125$ $P_{18} = 0.0006103515625$ $P_{19} = 0.00030517578125$ $P_{20} = 0.000152587890625$ $P_{21} = 7.62939453125 \times 10^{-5}$ $P_{22} = 3.814697265625 \times 10^{-5}$ $P_{23} = 1.9073486328125 \times 10^{-5}$ $P_{24} = 9.5367431640625 \times 10^{-6}$ $P_{25} = 4.76837158203125 \times 10^{-6}$ $P_{26} = 2.384185791015625 \times 10^{-6}$ $P_{27} = 1.1920928955078125 \times 10^{-6}$ $P_{28} = 5.9604644775390625 \times 10^{-7}$ $P_{29} = 2.9802322387695312 \times 10^{-7}$ $P_{30} = 1.4901161193847656 \times 10^{-7}$ $P_{31} = 7.450580596923828 \times 10^{-8}$ $P_{32} = 3.725290298461914 \times 10^{-8}$ $P_{33} = 1.862645149230957 \times 10^{-8}$ $P_{34} = 9.313225746154785 \times 10^{-9}$ $P_{35} = 4.656612873077392 \times 10^{-9}$ $P_{36} = 2.328306436538696 \times 10^{-9}$ $P_{37} = 1.164153218269348 \times 10^{-9}$ $P_{38} = 5.82076609134674 \times 10^{-10}$ $P_{39} = 2.91038304567337 \times 10^{-10}$ $P_{40} = 1.455191522836685 \times 10^{-10}$ $P_{41} = 7.275957614183425 \times 10^{-11}$ $P_{42} = 3.637978807091712 \times 10^{-11}$ $P_{43} = 1.818989403545856 \times 10^{-11}$ $P_{44} = 9.09494701772928 \times 10^{-12}$ $P_{45} = 4.54747350886464 \times 10^{-12}$ $P_{46} = 2.27373675443232 \times 10^{-12}$ $P_{47} = 1.13686837721616 \times 10^{-12}$ $P_{48} = 5.6843418860808 \times 10^{-13}$ $P_{49} = 2.8421709430404 \times 10^{-13}$ $P_{50} = 1.4210854715202 \times 10^{-13}$ $P_{51} = 7.105427357601 \times 10^{-14}$ $P_{52} = 3.5527136788005 \times 10^{-14}$ $P_{53} = 1.7763568394002 \times 10^{-14}$ $P_{54} = 8.881784197001 \times 10^{-15}$ $P_{55} = 4.4408920985005 \times 10^{-15}$ $P_{56} = 2.2204460492502 \times 10^{-15}$ $P_{57} = 1.1102230246251 \times 10^{-15}$ $P_{58} = 5.5511151231255 \times 10^{-16}$ $P_{59} = 2.7755575615627 \times 10^{-16}$ $P_{60} = 1.3877787807813 \times 10^{-16}$ $P_{61} = 6.9388939039065 \times 10^{-17}$ $P_{62} = 3.4694469519532 \times 10^{-17}$ $P_{63} = 1.7347234759766 \times 10^{-17}$ $P_{64} = 8.673617379883 \times 10^{-18}$ $P_{65} = 4.3368086899415 \times 10^{-18}$ $P_{66} = 2.1684043449707 \times 10^{-18}$ $P_{67} = 1.0842021724854 \times 10^{-18}$ $P_{68} = 5.421010862427 \times 10^{-19}$ $P_{69} = 2.7105054312135 \times 10^{-19}$ $P_{70} = 1.3552527156067 \times 10^{-19}$ $P_{71} = 6.7762635780335 \times 10^{-20}$ $P_{72} = 3.3881317890167 \times 10^{-20}$ $P_{73} = 1.6940658945084 \times 10^{-20}$ $P_{74} = 8.470329472542 \times 10^{-21}$ $P_{75} = 4.235164736271 \times 10^{-21}$ $P_{76} = 2.1175823681355 \times 10^{-21}$ $P_{77} = 1.0587911840677 \times 10^{-21}$ $P_{78} = 5.2939559203385 \times 10^{-22}$ $P_{79} = 2.6469779601692 \times 10^{-22}$ $P_{80} = 1.3234889800846 \times 10^{-22}$ $P_{81} = 6.617444900423 \times 10^{-23}$ $P_{82} = 3.3087224502115 \times 10^{-23}$ $P_{83} = 1.6543612251057 \times 10^{-23}$ $P_{84} = 8.2718061255285 \times 10^{-24}$ $P_{85} = 4.1359030627642 \times 10^{-24}$ $P_{86} = 2.0679515313821 \times 10^{-24}$ $P_{87} = 1.0339757656911 \times 10^{-24}$ $P_{88} = 5.1698788284555 \times 10^{-25}$ $P_{89} = 2.5849394142277 \times 10^{-25}$ $P_{90} = 1.2924697071139 \times 10^{-25}$ $P_{91} = 6.4623485355694 \times 10^{-26}$ $P_{92} = 3.2311742677847 \times 10^{-26}$ $P_{93} = 1.6155871338924 \times 10^{-26}$ $P_{94} = 8.077935669462 \times 10^{-27}$ $P_{95} = 4.038967834731 \times 10^{-27}$ $P_{96} = 2.0194839173655 \times 10^{-27}$ $P_{97} = 1.0097419586827 \times 10^{-27}$ $P_{98} = 5.0487097934135 \times 10^{-28}$ $P_{99} = 2.5243548967067 \times 10^{-28}$ $P_{100} = 1.2621774483534 \times 10^{-28}$ $P_{101} = 6.310887241767 \times 10^{-29}$ $P_{102} = 3.1554436208835 \times 10^{-29}$ $P_{103} = 1.5777218104417 \times 10^{-29}$ $P_{104} = 7.8886090522085 \times 10^{-30}$ $P_{105} = 3.9443045261042 \times 10^{-30}$ $P_{106} = 1.9721522630521 \times 10^{-30}$ $P_{107} = 9.8607613152605 \times 10^{-31}$ $P_{108} = 4.9303806576302 \times 10^{-31}$ $P_{109} = 2.4651903288151 \times 10^{-31}$ $P_{110} = 1.2325951644075 \times 10^{-31}$ $P_{111} = 6.1629758220375 \times 10^{-32}$ $P_{112} = 3.0814879110187 \times 10^{-32}$ $P_{113} = 1.5407439555094 \times 10^{-32}$ $P_{114} = 7.703719777547 \times 10^{-33}$ $P_{115} = 3.8518598887735 \times 10^{-33}$ $P_{116} = 1.9259299443867 \times 10^{-33}$ $P_{117} = 9.6296497219335 \times 10^{-34}$ $P_{118} = 4.8148248609667 \times 10^{-34}$ $P_{119} = 2.4074124304834 \times 10^{-34}$ $P_{120} = 1.2037062152417 \times 10^{-34}$ $P_{121} = 6.0185310762085 \times 10^{-35}$ $P_{122} = 3.0092655381042 \times 10^{-35}$ $P_{123} = 1.5046327690521 \times 10^{-35}$ $P_{124} = 7.5231638452605 \times 10^{-36}$ $P_{125} = 3.7615819226302 \times 10^{-36}$ $P_{126} = 1.8807909613151 \times 10^{-36}$ $P_{127} = 9.4039548065755 \times 10^{-37}$ $P_{128} = 4.7019774032877 \times 10^{-37}$ $P_{129} = 2.3509887016439 \times 10^{-37}$ $P_{130} = 1.1754943508219 \times 10^{-37}$ $P_{131} = 5.8774717541095 \times 10^{-38}$ $P_{132} = 2.9387358770547 \times 10^{-38}$ $P_{133} = 1.4693679385274 \times 10^{-38}$ $P_{134} = 7.346839692637 \times 10^{-39}$ $P_{135} = 3.6734198463185 \times 10^{-39}$ $P_{136} = 1.8367099231592 \times 10^{-39}$ $P_{137} = 9.183549615796 \times 10^{-40}$ $P_{138} = 4.591774807898 \times 10^{-40}$ $P_{139} = 2.295887403949 \times 10^{-40}$ $P_{140} = 1.1479437019745 \times 10^{-40}$ $P_{141} = 5.7397185098725 \times 10^{-41}$ $P_{142} = 2.8698592549362 \times 10^{-41}$ $P_{143} = 1.4349296274681 \times 10^{-41}$ $P_{144} = 7.1746481373405 \times 10^{-42}$ $P_{145} = 3.5873240686702 \times 10^{-42}$ $P_{146} = 1.7936620343351 \times 10^{-42}$ $P_{147} = 8.9683101716755 \times 10^{-43}$ $P_{148} = 4.4841550858377 \times 10^{-43}$ $P_{149} = 2.2420775429189 \times 10^{-43}$ $P_{150} = 1.1210387714594 \times 10^{-43}$ $P_{151} = 5.605193857297 \times 10^{-44}$ $P_{152} = 2.8025969286485 \times 10^{-44}$ $P_{153} = 1.4012984643242 \times 10^{-44}$ $P_{154} = 7.006492321621 \times 10^{-45}$ $P_{155} = 3.5032461608105 \times 10^{-45}$ $P_{156} = 1.7516230804052 \times 10^{-45}$ $P_{157} = 8.758115402026 \times 10^{-46}$ $P_{158} = 4.379057701013 \times 10^{-46}$ $P_{159} = 2.1895288505065 \times 10^{-46}$ $P_{160} = 1.0947644252532 \times 10^{-46}$ $P_{161} = 5.473822126266 \times 10^{-47}$ $P_{162} = 2.736911063133 \times 10^{-47}$ $P_{163} = 1.3684555315665 \times 10^{-47}$ $P_{164} = 6.8422776578325 \times 10^{-48}$ $P_{165} = 3.4211388289162 \times 10^{-48}$ $P_{166} = 1.7105694144581 \times 10^{-48}$ $P_{167} = 8.5528470722905 \times 10^{-49}$ $P_{168} = 4.2764235361452 \times 10^{-49}$ $P_{169} = 2.1382117680726 \times 10^{-49}$ $P_{170} = 1.0691058840363 \times 10^{-49}$ $P_{171} = 5.3455294201815 \times 10^{-50}$ $P_{172} = 2.6727647100907 \times 10^{-50}$ $P_{173} = 1.3363823550454 \times 10^{-50}$ $P_{174} = 6.681911775227 \times 10^{-51}$ $P_{175} = 3.3409558876135 \times 10^{-51}$ $P_{176} = 1.6704779438067 \times 10^{-51}$ $P_{177} = 8.3523897190335 \times 10^{-52}$ $P_{178} = 4.1761948595167 \times 10^{-52}$ $P_{179} = 2.0880974297584 \times 10^{-52}$ $P_{180} = 1.0440487148792 \times 10^{-52}$ $P_{181} = 5.220243574396 \times 10^{-53}$ $P_{182} = 2.610121787198 \times 10^{-53}$ $P_{183} = 1.305060893599 \times 10^{-53}$ $P_{184} = 6.525304467995 \times 10^{-54}$ $P_{185} = 3.2626522339975 \times 10^{-54}$ $P_{186} = 1.6313261169987 \times 10^{-54}$ $P_{187} = 8.1566305849935 \times 10^{-55}$ $P_{188} = 4.0783152924967 \times 10^{-55}$ $P_{189} = 2.0391576462484 \times 10^{-55}$ $P_{190} = 1.0195788231242 \times 10^{-55}$ $P_{191} = 5.097894115621 \times 10^{-56}$ $P_{192} = 2.5489470578105 \times 10^{-56}$ $P_{193} = 1.2744735289052 \times 10^{-56}$ $P_{194} = 6.372367644526 \times 10^{-57}$ $P_{195} = 3.186183822263 \times 10^{-57}$ $P_{196} = 1.5930919111315 \times 10^{-57}$ $P_{197} = 7.9654595556575 \times 10^{-58}$ $P_{198} = 3.9827297778287 \times 10^{-58}$ $P_{199} = 1.9913648889144 \times 10^{-58}$ $P_{200} = 9.956824444572 \times 10^{-59}$ $P_{201} = 4.978412222286 \times 10^{-59}$ $P_{202} = 2.489206111143 \times 10^{-59}$ $P_{203} = 1.2446030555715 \times 10^{-59}$ $P_{204} = 6.2230152778575 \times 10^{-60}$ $P_{205} = 3.1115076389287 \times 10^{-60}$ $P_{206} = 1.5557538194644 \times 10^{-60}$ $P_{207} = 7.778769097322 \times 10^{-61}$ $P_{208} = 3.889384548661 \times 10^{-61}$ $P_{209} = 1.9446922743305 \times 10^{-61}$ $P_{210} = 9.7234613716525 \times 10^{-62}$ $P_{211} = 4.8617306858262 \times 10^{-62}$ $P_{212} = 2.4308653429131 \times 10^{-62}$ $P_{213} = 1.2154326714565 \times 10^{-62}$ $P_{214} = 6.0771633572825 \times 10^{-63}$ $P_{215} = 3.0385816786412 \times 10^{-63}$ $P_{216} = 1.5192908393206 \times 10^{-63}$ $P_{217} = 7.596454196603 \times 10^{-64}$ $P_{218} = 3.7982270983015 \times 10^{-64}$ $P_{219} = 1.8991135491507 \times 10^{-64}$ $P_{220} = 9.4955677457535 \times 10^{-65}$ $P_{221} = 4.7477838728767 \times 10^{-65}$ $P_{222} = 2.3738919364384 \times 10^{-65}$ $P_{223} = 1.1869459682192 \times 10^{-65}$ $P_{224} = 5.934729841096 \times 10^{-66}$ $P_{225} = 2.967364920548 \times 10^{-66}$ $P_{226} = 1.483682460274 \times 10^{-66}$ $P_{227} = 7.41841230137 \times 10^{-67}$ $P_{228} = 3.709206150685 \times 10^{-67}$ $P_{229} = 1.8546030753425 \times 10^{-67}$ $P_{230} = 9.2730153767125 \times 10^{-68}$ $P_{231} = 4.6365076883562 \times 10^{-68}$ $P_{232} = 2.3182538441781 \times 10^{-68}$ $P_{233} = 1.1591269220891 \times 10^{-68}$ $P_{234} = 5.7956346104455 \times 10^{-69}$ $P_{235} = 2.8978173052227 \times 10^{-69}$ $P_{236} = 1.4489086526113 \times 10^{-69}$ $P_{237} = 7.2445432630565 \times 10^{-70}$ $P_{238} = 3.6222716315282 \times 10^{-70}$ $P_{239} = 1.8111358157641 \times 10^{-70}$ $P_{240} = 9.0556790788205 \times 10^{-71}$ $P_{241} = 4.5278395394102 \times 10^{-71}$ $P_{242} = 2.2639197697051 \times 10^{-71}$ $P_{243} = 1.1319598848526 \times 10^{-71}$ $P_{244} = 5.659799424263 \times 10^{-72}$ $P_{245} = 2.8298997121315 \times 10^{-72}$ $P_{246} = 1.4149498560657 \times 10^{-72}$ $P_{247} = 7.0747492803285 \times 10^{-73}$ $P_{248} = 3.5373746401642 \times 10^{-73}$ $P_{249} = 1.7686873200821 \times 10^{-73}$ $P_{250} = 8.8434366004105 \times 10^{-74}$ $P_{251} = 4.4217183002052 \times 10^{-74}$ $P_{252} = 2.2108591501026 \times 10^{-74}$ $P_{253} = 1.1054295750513 \times 10^{-74}$ $P_{254} = 5.5271478752565 \times 10^{-75}$ $P_{255} = 2.7635739376282 \times 10^{-75}$ $P_{256} = 1.3817869688141 \times 10^{-75}$ $P_{257} = 6.9089348440705 \times 10^{-76}$ $P_{258} = 3.4544674220352 \times 10^{-76}$ $P_{259} = 1.7272337110176 \times 10^{-76}$ $P_{260} = 8.636168555088 \times 10^{-77}$ $P_{261} = 4.318084277544 \times 10^{-77}$ $P_{262} = 2.159042138772 \times 10^{-77}$ $P_{263} = 1.079521069386 \times 10^{-77}$ $P_{264} = 5.39760534693 \times 10^{-78}$ $P_{265} = 2.698802673465 \times 10^{-78}$ $P_{266} = 1.3494013367325 \times 10^{-78}$ $P_{267} = 6.7470066836625 \times 10^{-79}$ $P_{268} = 3.3735033418312 \times 10^{-79}$ $P_{269} = 1.6867516709156 \times 10^{-79}$ $P_{270} = 8.433758354578 \times 10^{-80}$ $P_{271} = 4.216879177289 \times 10^{-80}$ $P_{272} = 2.1084395886445 \times 10^{-80}$ $P_{273} = 1.0542197943222 \times 10^{-80}$ $P_{274} = 5.271098971611 \times 10^{-81}$ $P_{275} = 2.6355494858055 \times 10^{-81}$ $P_{276} = 1.3177747429027 \times 10^{-81}$ $P_{277} = 6.5888737145135 \times 10^{-82}$ $P_{278} = 3.2944368572567 \times 10^{-82}$ $P_{279} = 1.6472184286284 \times 10^{-82}$ $P_{280} = 8.236092143142 \times 10^{-83}$ $P_{281} = 4.118046071571 \times 10^{-83}$ $P_{282} = 2.0590230357855 \times 10^{-83}$ $P_{283} = 1.0295115178927 \times 10^{-83}$ $P_{284} = 5.1475575894635 \times 10^{-84}$ $P_{285} = 2.5737787947317 \times 10^{-84}$ $P_{286} = 1.2868893973659 \times 10^{-84}$ $P_{287} = 6.4344469868295 \times 10^{-85}$ $P_{288} = 3.2172234934147 \times 10^{-85}$ $P_{289} = 1.6086117467073 \times 10^{-85}$ $P_{290} = 8.0430587335365 \times 10^{-86}$ $P_{291} = 4.0215293667682 \times 10^{-86}$ $P_{292} = 2.0107646833841 \times 10^{-86}$ $P_{293} = 1.0053823416921 \times 10^{-86}$ $P_{294} = 5.0269117084605 \times 10^{-87}$ $P_{295} = 2.5134558542302 \times 10^{-87}$ $P_{296} = 1.2567279271151 \times 10^{-87}$ $P_{297} = 6.2836396355755 \times 10^{-88}$ $P_{298} = 3.1418198177877 \times 10^{-88}$ $P_{299} = 1.5709099088939 \times 10^{-88}$ $P_{300} = 7.8545495444695 \times 10^{-89}$ $P_{301} = 3.9272747722347 \times 10^{-89}$ $P_{302} = 1.9636373861173 \times 10^{-89}$ $P_{303} = 9.8181869305865 \times 10^{-90}$ $P_{304} = 4.9090934652932 \times 10^{-90}$ $P_{305} = 2.4545467326466 \times 10^{-90}$ $P_{306} = 1.2272733663233 \times 10^{-90}$ $P_{307} = 6.1363668316165 \times 10^{-91}$ $P_{308} = 3.0681834158082 \times 10^{-91}$ $P_{309} = 1.5340917079041 \times 10^{-91}$ $P_{310} = 7.6704585395205 \times 10^{-92}$ $P_{311} = 3.8352292697602 \times 10^{-92}$ $P_{312} = 1.9176146348801 \times 10^{-92}$ $P_{313} = 9.5880731744005 \times 10^{-93}$ $P_{314} = 4.7940365872002 \times 10^{-93}$ $P_{315} = 2.3970182936001 \times 10^{-93}$ $P_{316} = 1.1985091468001 \times 10^{-93}$ $P_{317} = 5.9925457340005 \times 10^{-94}$ $P_{318} = 2.9962728670002 \times 10^{-94}$ $P_{319} = 1.4981364335001 \times 10^{-94}$ $P_{320} = 7.4906821675005 \times 10^{-95}$ $P_{321} = 3.7453410837502 \times 10^{-95}$ $P_{322} = 1.8726705418751 \times 10^{-95}$ $P_{323} = 9.3633527093755 \times 10^{-96}$ $P_{324} = 4.6816763546877 \times 10^{-96}$ $P_{325} = 2.3408381773439 \times 10^{-96}$ $P_{326} = 1.1704190886719 \times 10^{-96}$ $P_{327} = 5.8520954433595 \times 10^{-97}$ $P_{328} = 2.9260477216797 \times 10^{-97}$ $P_{329} = 1.4630238608399 \times 10^{-97}$ $P_{330} = 7.3151193041995 \times 10^{-98}$ $P_{331} = 3.6575596520997 \times 10^{-98}$ $P_{332} = 1.8287798260499 \times 10^{-98}$ $P_{333} = 9.1438991302495 \times 10^{-99}$ $P_{334} = 4.5719495651247 \times 10^{-99}$ $P_{335} = 2.2859747825624 \times 10^{-99}$ $P_{336} = 1.1429873912812 \times 10^{-99}$ $P_{337} = 5.714936956406 \times 10^{-100}$ $P_{338} =$

۲۱۳ $\rightarrow$ طبق کتاب $\rightarrow$ $\frac{V_1}{T_1} = \frac{V_2}{T_2}$ $\rightarrow$ $\frac{2}{280} = \frac{2.18}{T_2} \Rightarrow T_2 = 334^{\circ}K \Rightarrow \Delta T = 54$ گزینه ۲

۲۱۴ $\rightarrow$ $\frac{q_1}{a_1} = f \rightarrow \frac{r_1}{r_2} = 2 \rightarrow r_1 = x \rightarrow x = 10$ نقطه

۲۱۵ $\rightarrow$ $\frac{a_1}{r_1^2} = \frac{a_2}{r_2^2} + \frac{r}{a_0} = \frac{a_2}{r_2^2} + a_2 = -\frac{1}{9}$

۲۱۶ $\rightarrow$ $\sum F = 7.155$ گزینه ۴

۲۱۷ $\rightarrow$ $E = \frac{kq}{r^2} \Rightarrow 10^5 = \frac{9 \times 10^9 \times q}{.1^2} \Rightarrow q = 10^{-4} C = 100 \mu C$ گزینه ۱

$\Rightarrow F = Eq \rightarrow 2 \times 10^{-2} = 10^5 \times q' \Rightarrow q' = 2 \times 10^{-7} C = 200 \mu C$

۲۱۸ $\rightarrow$ اگر ولتاژ در هر خازن C_1 برابر ۴۰ ولت باشد $V_1 = E \cdot d = 200V$ نقطه

۲۱۹ $\rightarrow$ $V_1 = E \cdot d = 90V$ $V_{C_1} = V_{C_2} = 40V$ $q_{C_1,2} = C_{C_1,2} \times 40 = 40$

۲۲۰ $\rightarrow$ $V_2 = E \cdot d = 120V$ $q_1 = 440 \mu C \rightarrow V_1 = 40 \rightarrow V_2 = 40 + 80 = 120V$ گزینه ۲

۲۲۱ $\rightarrow$ تا به شل‌های ۱۵۰ جوجه پدید $\rightarrow$ مقاومت بزرگتر شود $\rightarrow$ مقاومت حاصل زیاد می‌شود $\rightarrow$ $I = \frac{\mathcal{E}}{r + \Sigma R} \rightarrow I \downarrow$ کاهش می‌یابد گزینه ۳

چون R زیاد شود $\rightarrow$ جریان کم می‌شود $\rightarrow I_1$ زیاد می‌شود

۲۲۲ $\rightarrow$ خازن C_1 و C_2 سری هستند با $\frac{1}{2}$ معادلی و همگی با 1.8 سری هستند گزینه ۴

۲۲۳ $\rightarrow$ $P = RI^2$ $1 = 2I^2$ $I = \frac{1}{\sqrt{2}}$ $\Rightarrow V_1 = RI = 4 \Rightarrow I_1 = \frac{1}{\sqrt{2}} \Rightarrow I_2 = \frac{1}{\sqrt{2}}$

۲۲۴ $\rightarrow$ $V_A - 2 - 4 = V_B \Rightarrow V_A - V_B = 4$

$B_A = \frac{\mu_0 I}{2d}$
 $B_B = \frac{\mu_0 I}{d}$
 $B_C = \frac{\mu_0 I}{2d}$
 $B_D = \frac{\mu_0 I}{2d}$

$\Rightarrow B_C > B_B > B_D > B_A$

گزینی ۴

$I = 0.01 \sin 10000t \rightarrow I_{max} = 0.01$

$\mathcal{E} = L \frac{dI}{dt} \rightarrow \frac{\mu_0}{4\pi} \times 0.01 \times 10000 \cos 10000t$

$\mathcal{E}_{max} = 1V$

گزینی ۳

15 cm
 $V_0 = 10 \text{ m/s}$
 $\Delta x = 12 \text{ cm}$
 $t = 1 + 1 + t = 4 \text{ s}$

$\Rightarrow \bar{V} = \frac{\Delta x}{\Delta t} = \frac{12 \text{ cm}}{4 \text{ s}} = 3 \text{ cm/s}$

گزینی ۱

$\bar{V} = 20 \text{ m/s} \Rightarrow \bar{V} = \frac{\Delta x}{\Delta t} \Rightarrow 20 = \frac{\Delta x}{25} \Rightarrow \Delta x = 500 \text{ m}$

$\Rightarrow 500 = (1/2 \times a \times t^2 + 0) + \frac{a}{2} (25 - t)(t) + 1/2 \times a \times t^2 \Rightarrow t = 15 \text{ s}$

$t = 25 - 10 = 15 \text{ s}$

گزینی ۳

$V_0 = 10 \text{ m/s}$
 $x_0 = 0$
 $V^2 - V_0^2 = 2ax$
 $V^2 - 100 = -2 \times 25 = -50 \Rightarrow V^2 = 50 \Rightarrow V = 7.07 \text{ m/s}$

$V^2 - 0 = 2 \times 25 + V = 12 \text{ m/s}$

insta: @physics.easy

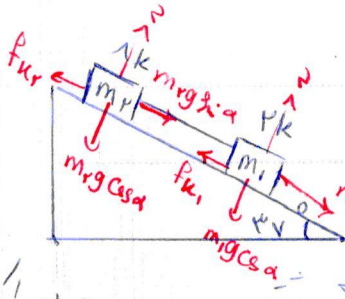
گزینی ۲

$W_{fk} \Rightarrow \text{ک} - \text{و} = \frac{1}{2} mv^2 - mgh$

$W_{fk} = f_k \cdot d \cdot \cos \alpha \Rightarrow f_k \cdot d \cdot \cos \alpha = 1/2 \times m \times 12 - m \times 10 \times 10$

$\mu_k \cdot mg \times 1 \times \frac{\sqrt{3}}{2} = 1/2 \times m \times 12 - m \times 10 \times 10 \Rightarrow \mu_k = \frac{\sqrt{3}}{10}$

$\mu_k = \frac{\sqrt{3}}{10}$



$$\sum F = ma$$

$$m_1 g \sin \alpha + m_2 g \sin \alpha = (m_1 + m_2) a$$

$$12 + 12 = 10a \rightarrow a = 2.4 \text{ m/s}^2$$

$$\sum F = ma \rightarrow m_1 g \sin \alpha - f_{k1} + m_2 g \sin \alpha - f_{k2} = (m_1 + m_2) a$$

$$\Rightarrow 12 - 2.12 + 12 - 14 = 10a \rightarrow a_p = 4.108$$

$$T' + m_1 g \sin \alpha - f_{k1} - T' = m_1 a \rightarrow 12 - 2.12 - T' = 1.12 \rightarrow T' = 9.48$$

۲۲۵. شش شتاب ۵۴ جریه ش

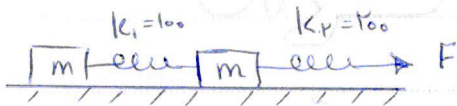
یابی T لازم نیست

$$T + m_1 g \sin \alpha - T = m_1 a$$

$$12 - T = 12$$

$$T = 0$$

گزینی ۴



$$\sum F = ma$$

$$k_1 x - \mu mg = ma \rightarrow 2 - 1.5 \times 1 = 10a$$

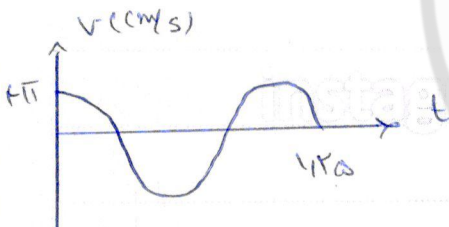
$$m = 1 \text{ kg}$$

$$\sum F = ma \rightarrow k_2 x - \mu mg - \mu mg = 2ma$$

$$200x - 3 = 1 \rightarrow x = \frac{4}{200} = 2 \text{ cm}$$

insta: @physics.easy

گزینی ۲



$$v_{\max} = 4\pi \text{ cm/s} = A\omega$$

$$E = \frac{1}{2} m A^2 \omega^2$$

$$\Rightarrow E = \frac{1}{2} \times 0.1 \times (4\pi \times 10^{-2})^2 = 0.104 \pi^2 \text{ mJ}$$

۲۲۷. شش شتاب ۱۳ جریه ش

گزینی ۴

$$a_{\max} = 10 \text{ m/s}^2 \rightarrow A\omega^2 = 10$$

$$\Rightarrow \omega \times 2 = 10$$

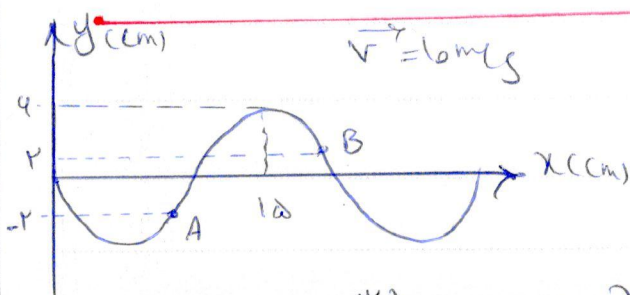
$$v_{\max} = 4 \text{ m/s} \rightarrow A\omega = 4$$

$$\omega = 5 \rightarrow A = 0.8$$

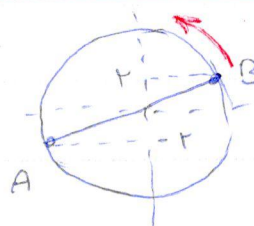
$$\Rightarrow x = 0.8 \sin 5t$$

۲۲۸. شش شتاب ۱۰ جریه ش

گزینی ۱



$$v = 10 \text{ m/s}$$



۲۲۹. شش شتاب ۱۰ جریه ش

$$A, B, \pi, 2\pi, 3\pi, 4\pi, 5\pi, 6\pi, 7\pi, 8\pi, 9\pi, 10\pi$$

$$\frac{v}{\lambda} = 10 \rightarrow \lambda = 20$$

$$\lambda = vT \rightarrow T = 0.2$$

$$T = \frac{1}{f} = \frac{1}{5} = 0.2 \text{ s}$$

گزینی ۳

صفحه ۴

$$\Delta B = \log \frac{I_r}{I_i} L = \left(\frac{r_i}{r_r} \right)^2$$

$$\Rightarrow K = \log \left(\frac{r_o}{r_r} \right)^2 + \left(\frac{r_o}{r_r} \right)^2 = 10^4 \rightarrow r_r = 40 \text{ cm}$$

۲۳۰ ← مثال ۱۱۱ جزوه ش

گزینی ۱

$$f_r = \frac{v}{\lambda} = \frac{2v}{2\lambda} = \frac{2v}{2 \times 10} = 2v$$

۲۳۱ ← مثال ۱۵۸ جزوه ش

$$P = \frac{(2n-1)v}{\lambda L} \Rightarrow 2v = \frac{(2n-1)v}{\lambda L} \rightarrow L = \frac{2n-1}{\lambda}$$

$$n=1 \rightarrow L = 1/18 \text{ m} = 12.5 \text{ cm}$$

$$n=2 \rightarrow L = 3/18 \text{ m} = 37.5 \text{ cm}$$

$$n=3 \rightarrow L = 5/18 \text{ m} = 62.5 \text{ cm}$$

$$\omega_0 = 37.5 = 12.5 \text{ cm} \quad \checkmark$$

گزینی ۲

$$\Delta t = 2n \frac{T}{f} \rightarrow \frac{2T}{f} = 2 \times 10^{-15} \text{ s}$$

۲۳۲ ← مثال ۱۲۲ جزوه ش

$$E = hf \rightarrow 3.13 \times 10^{-19} = 6.626 \times 10^{-34} \times \frac{1}{T} \rightarrow T = 2 \times 10^{-15}$$

گزینی ۴

$$E = hf = h \frac{c}{\lambda} \rightarrow \frac{2 \times 10^{-15} \times 3 \times 10^8}{2 \times 10^{-9}} = 2 \text{ eV}$$

۲۳۳ ← مثال ۱۳۵ جزوه ش

$$k_{\max} = hf - \omega_0 \rightarrow \frac{2 \times 10^{-15} \times 3 \times 10^8}{1.7 \times 10^{-9}} = 2 \times 10^{-15} \times 3 \times 10^8 - \omega_0 \rightarrow \omega_0 = 4 \text{ eV}$$

$$\Rightarrow k_{\max} = 1 \text{ eV} = 1.7 \times 10^{-19} \text{ J}$$

گزینی ۱

$$\frac{v_r}{v_i} = \frac{n_i}{n_r} = \frac{2}{1} = 2$$

۲۳۴ ← نورش یکنواخت به $n=2$ فرود آمد

گزینی ۳

۲۳۵ ← گزینی ۳ α به نسبت به اندازه $2p$ خارج می شود

insta: @physics.easy

نویسنده: جعفری نژاد

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