

Forum:[Hack Forums](#)

Thread: [\[Helpdesk\] Biology, Chemistry, College, Computer Science, Math, Physics, Psychology](#)

King of Hearts - October 20, 2015, 3:06 pm

Welcome to the official Brotherhood Education Nation Helpdesk. I've made this thread to create a centralized way for others to receive help in this forum. The tutors in this helpdesk will try to answer your questions to the best of our abilities.

Current Subjects offered: The American school system, standardized testing and other college related inquiries
Tutors: [Froggy](#), [King of Hearts](#)

Biology (up until cell bio) Tutors: [King of Hearts](#)

British School System Tutors: [Rivalry](#)

Chemistry (up until organic, year 2 generally) Tutors: [A.Brian Kronos](#), [King of Hearts](#)

Computer Science Tutors: [King of Hearts](#), [Roger Waters](#), [zer0w1re](#)

Critical Thinking/Admissions Tests Tutors: [Rivalry](#)

English Literature/Language (including essays) Tutors: [Rivalry](#)

French Tutors: [Hash G.](#)

Geography Tutors: [Monsoon Masoon](#)

Math Tutors: [A.Brian Kronos](#), [King of Hearts](#), [Roger Waters](#), [zer0w1re](#)

Music Tutors: [Monsoon Masoon](#)

Philosophy Tutors: [.NETGuard](#)

Physics (basic up 101/102/AP Physics C level)Tutors: [A.Brian Kronos](#), [King of Hearts](#)

PsychologyTutors: [Froggy](#)

To receive help, please post with the following formatting:

Code Current Education Level (e.g. freshman in college, junior in highschool, etc):

Subject:

Question:

Any relevant information (e.g. link to assignment, videos watched to understand said concept):To apply to be a tutor, please pm me and make your case.

Last, but most importantly, please do not expect us to do your homework for you. We will help guide you to the answer, but you must show us that you attempted to work on the problem on your own.

samsepi01 - *October 21, 2015, 9:18 pm*

We're ready to assist! Post your questions!

Rivalry - *October 22, 2015, 7:05 am*

I'm also here to help :)

Aristocles - *October 22, 2015, 7:33 am*

I don't want to do things too quickly though I may be ok to help people with philosophy, I'm in a philosophy university and its my 2nd year

Preceptor - *October 22, 2015, 1:17 pm*

My pleasure. I'll help as much as i can.

King of Hearts - *October 25, 2015, 8:13 pm*

If anyone needs help with these subjects, there are a ton of great members on this thread willing to help.

Aurora - *October 27, 2015, 4:33 pm*

Just a few general questions to get this thread started.

What do you recommend a high school student should start doing to prepare him/her for college?

What certifications are available now for high school students?

What certifications are available in general for all people?

King of Hearts - *October 27, 2015, 5:35 pm*

Please note that I'm a computer science/chemistry/premed major in the U.S so my answers will be geared in that direction.

What do you recommend a high school student should start doing to prepare him/her for college?

There are a couple of things that will get you into a good college. The first is that you should take part in extracurriculars. This may seem like it's not important, but colleges are looking for students who have experience dealing with the real world, experience being part of a team and leadership experience. From my personal experience, I was accepted into a great college not because of my grades or ACT score, but because of the extracurriculars I was involved in and my community

outreach projects. This leads to grades and ACT scores. Both are important, however, what's even more important is the trend they show. For example, if someone has a 3.0 GPA freshman year, 3.4 sophomore year and 3.5+ junior and senior year, he is showing an upward trend--meaning that the student is hard working and dedicated. The same goes for ACT scores.

You asked how one should prepare for college. Honestly, college is different per person. Some people don't really need to prepare for the college life while others have to rework a lot of their studying and socializing habits. It all depends. The best answer to this question is that when you get to college, change early if you need to.

What certifications are available now for high school students?

This depends on the state you are in and the type of certificates/fields you are interested in. Many IT related certificates don't have age requirements to obtain. I haven't taken any of them, so I can't speak much. However, I am EMT B certified and the requirement for that in my state is 18 years old. I was also considering doing a pharmacy technician course and faced the same issue as well. I did take some sort of lifeguard certification (along with a CPR certification) when I was 17, so not all require the 18 year old age limit. There are a lot of courses that high school students can take--check your community college for details

What certifications are available in general for all people?

There are a lot of certificates available in a variety of fields. From IT to Healthcare to education certificates, I can't speak for any of them except for EMT, pharmacy tech and other healthcare related certificates.

Crowning - October 27, 2015, 9:11 pm

Hey,

So I've had this question for a while, I just couldn't get the right answer.

So I'm in highschool, in grade 11. I am trying to maintain a great average (over 85%) and at the same time, be involved around school and apply for scholarships. However, the subjects I have this semester are a killer (Math, Chemistry, Physics and Accounting), everything except Accounting is difficult. We get a lot of work, and need to study a lot so I feel like if I get involved around school it'll affect my grades. My brother, when he was in my highschool, he was just smart in general and quite popular. He didn't have such a hectic semester and his semesters were balanced between 2 quite well. I have a killer first semester and a relatively easier second semester.

I'm only in one club right now, it's a business club and I feel like being involved in more things or starting a club but I just can't find the time, I also can't find the time to meet up with friends after school or whatever.

What do you recommend I should do? How could I balance both? I know the answer would be time-management, but like.. how so? I try to make a time-table but it just doesn't work out as I have so much work and sometimes it takes longer than expected.

Thanks.

King of Hearts - October 28, 2015, 10:59 am

(Oct 27, 2015 09:11 PM)Crowning Wrote: [\[CITE\]](#) Hey,

So I've had this question for a while, I just couldn't get the right answer.

So I'm in highschool, in grade 11. I am trying to maintain a great average (over 85%) and at the same time, be involved around school and apply for scholarships. However, the subjects I have this semester are a killer (Math, Chemistry, Physics and Accounting), everything except Accounting is

difficult. We get a lot of work, and need to study a lot so I feel like if I get involved around school it'll affect my grades. My brother, when he was in my highschool, he was just smart in general and quite popular. He didn't have such a hectic semester and his semesters were balanced between 2 quite well. I have a killer first semester and a relatively easier second semester.

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Thanks.

In terms of time management, the first thing that I'd suggest you look into is making a todo list or setting up an agenda for the day. This will help you set realistic goals and also prioritize what needs to be done. The problem nowadays, is that we spend too much time doing nothing. I'm probably the most guilty of this--I spend more time watching movies/tv shows/online than I go to school and study combined. Having an agenda, will help you get started being motivated. Now of course, this is a two way street. Once you've initiated that "panic" when you see that you have five hours of work to do in one hour, you must have the self discipline to not make the same mistake again. This self discipline comes in many different ways. For me, it was looking into the future and seeing myself doing what I loved. Of course, it helped that I am sort of a perfectionist and want a good GPA/grades etc but that alone wouldn't have gotten me through.

As for the clubs, one thing I forgot to mention previously is that although colleges want to see well roundedness, they also want to see dedication. Don't just join 10 clubs to show that you are well rounded. Even if you are in one or two clubs, but if you show that you are working hard to achieve the club's objectives and also walking towards your future goals, you should be fine.

"everything except accounting is difficult". Are you in DECA? DECA is a great, great way for future business majors to learn about "the real world". And honestly, DECA (at least in my school) is a time consuming club. If you actually get to compete (we got to go to Orlando Disney Land/world one year and it was awesome), then you're on the right track, even if that's your only club.

Crowning - October 28, 2015, 1:43 pm

(Oct 28, 2015 10:59 AM)King of Hearts Wrote: [\[CITE\]](#) In terms of time management, the first thing that I'd suggest you look into is making a todo list or setting up an agenda for the day. This will help you set realistic goals and also prioritize what needs to be done. The problem nowadays, is that we spend too much time doing nothing. I'm probably the most guilty of this--I spend more time watching movies/tv shows/online than I go to school and study combined. Having an agenda, will help you get started being motivated. Now of course, this is a two way street. Once you've initiated that "panic" when you see that you have five hours of work to do in one hour, you must have the self discipline to not make the same mistake again. This self discipline comes in many different ways. For me, it was looking into the future and seeing myself doing what I loved. Of course, it helped that I am sort of a perfectionist and want a good GPA/grades etc but that alone wouldn't have gotten me through.

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Yes it's DECA lol.

I just had the test today and it wasn't "too" great but it was alright.

That said, I tried last year and didn't make it into provincials :p, however I am re-trying this year.

On a different note, my brother, who got a 90% average in grade 12, and was in 4 clubs, he ran 1 himself (Game Making Club), he was in Student Council, Social Justice team and homework help club. He did small things here and there like host a fund raiser in our school and he also danced in front of the school as he was a very good dancer.

Even though he did all that, he was quite popular, he went out to play basketball or go watch movies with friends. One thing I did notice tho, he has a lot of self-confidence and he is more of an extrovert than I am.

I don't know how I can do all that... Like his highschool life was quite good if you asked me (he did stress at times tho)

Celestial Shell9 - October 29, 2015, 1:22 pm

Current Education Level: Junior in high school

Subject: Physics

Question: A train accelerates up a wall (yes a train) with the max static coefficient of 0.4 and a mass of 2.5 kg (it's a tiny train)

What is the maximum acceleration that the train can achieve?

King of Hearts - October 29, 2015, 2:49 pm

(Oct 29, 2015 01:22 PM)Celestial Shell9 Wrote: [\[CITE\]](#) Current Education Level: Junior in high school

Subject: Physics

Question: A train accelerates up a wall (yes a train) with the max static coefficient of 0.4 and a mass of 2.5 kg (it's a tiny train)

What is the maximum acceleration that the train can achieve?

Are you sure that you're given the static coefficient and not the kinetic?

Celestial Shell9 - October 29, 2015, 2:52 pm

Yes. the wheels can only apply so much force w/o sliding (under F_{static})

King of Hearts - November 3, 2015, 8:45 pm

We're still willing to help people. Please post any questions you have on this thread.

Thanks

fabby2lurd - November 6, 2015, 11:44 am

I will just watch. Pretty sure i will also like to help

Bulgarian - November 6, 2015, 11:51 am

Hey guys, this is great, thank you for this opportunity. I'm currently a freshman in college and need quite some assistance with physics and calc2. Do I PM each tutor with some questions I have or do I post the question here in the format?

King of Hearts - November 6, 2015, 2:34 pm

(Nov 6, 2015 12:51 PM)WhiteG Wrote: [\[CITE\]](#) Hey guys, this is great, thank you for this opportunity. I'm currently a freshman in college and need quite some assistance with physics and calc2. Do I PM each tutor with some questions I have or do I post the question here in the format?
You can post the questions here. That way more people can benefit from previous (similar) questions.

Hash G. - November 6, 2015, 2:51 pm

I'll cover French in this helpdesk. Feel free to ask your questions.

Loki123 - November 6, 2015, 10:55 pm

I can help with Icelandic if anyone here is learning that. ?

fnatic440 - November 6, 2015, 11:12 pm

I am not a frequent user as I use to be and I don't know if this is purely a "brotherhood" set up, but I do have a nursing degree, so I can offer advice on health issues. Additionally, i happen to be quite knowledgeable given my medical studies in physiology, biochemistry (purely clinical biochem), pharmacology, gross anatomy, neuroscience, ECG reading, histology and cell biology, pathology, and molecular biology (kind of iffy on medical genetics). Keep in mind this is purely what a medical student by the end of their 2nd year, before they take the USMLE STEP 1 exam 'should' know. Oh, and I am ACLS certified and know how to poke the shit out of your veins.

King of Hearts - November 7, 2015, 3:40 pm

(Nov 7, 2015 12:12 AM)fnatic440 Wrote: [\[CITE\]](#) I am not a frequent user as I use to be and I don't know if this is purely a "brotherhood" set up, but I do have a nursing degree, so I can offer advice on health issues. Additionally, i happen to be quite knowledgeable given my medical studies in physiology, biochemistry (purely clinical biochem), pharmacology, gross anatomy, neuroscience, ECG reading, histology and cell biology, pathology, and molecular biology (kind of iffy on medical genetics). Keep in mind this is purely what a medical student by the end of their 2nd year, before they take the USMLE STEP 1 exam 'should' know. Oh, and I am ACLS certified and know how to poke the shit out of your veins.

If you don't mind me asking, are you from the U.S and if so why nursing and not MD/DO?

Also, I'll add you in for medical related issues.

fnatic440 - November 7, 2015, 10:08 pm

(Nov 7, 2015 04:40 PM)King of Hearts Wrote: [\[CITE\]](#) If you don't mind me asking, are you from the U.S and if so why nursing and not MD/DO?

Also, I'll add you in for medical related issues.

I'm considering MD now that I'm a nurse and I understand much better their knowledge level, and their scope of practice.

There is a lot to consider when choosing medical school: liability, good chance you'll kill someone unintentionally, long working hours, lots of paperwork now a days, humongous pressure during medical school and definitely after medical school. You really have to be psychologically ready to deal with the fact that you will kill people, that you will work 60+ hours a week, that nurses will call you in the middle of the night to tell you that the patient is coding, and so on.

Nursing is much safer; they get good pay, good vacation hours and best of all when you leave your shift no one calls you in the middle of the night.

Medical Doctor is something you should go for if you truly know what to expect and you love it.

zomgjulie - November 8, 2015, 4:58 pm

I'm also unsure if this is a specific group thing, but I'm a Geography major with a concentration in Urban Studies that I completed this summer and am in my final semester to finish my GIS Certificate. I'm sure there aren't many with this specific focus, but I'd be willing to help anyone who needs it.

Even just review or proof reading is something to consider.

I'll be applying over the next few months to several universities for my Master's program too.

King of Hearts - November 12, 2015, 9:30 am

(Nov 8, 2015 05:58 PM)zomgjulie Wrote: [\[CITE\]](#) I'm also unsure if this is a specific group thing, but I'm a Geography major with a concentration in Urban Studies that I completed this summer and am in my final semester to finish my GIS Certificate. I'm sure there aren't many with this specific focus, but I'd be willing to help anyone who needs it.

Even just review or proof reading is something to consider.

I'll be applying over the next few months to several universities for my Master's program too. Sure. If there are any such questions, feel free to jump in anytime.

DJKovesh - November 15, 2015, 11:24 pm

Education level: Sophomore in college, majoring in software engineering
Subject: Digital Logic and Design
Question:

P7. (10 points) Derive a minimal state table for an FSM that acts as a three-bit parity generator. For every three bits that are observed on the input w during three consecutive clock cycles, the FSM generates the parity bit $p = 1$ if and only if the number of 1s in the three-bit sequence is odd.

I really have no idea where to start with this. Any help/instruction would be much appreciated it!

King of Hearts - November 16, 2015, 10:27 am

(Nov 16, 2015 12:24 AM)DJKovesh Wrote: [\[CITE\]](#) Education level: Sophomore in college, majoring in software engineering
Subject: Digital Logic and Design
Question:

P7. (10 points) Derive a minimal state table for an FSM that acts as a three-bit parity generator. For every three bits that are observed on the input w during three consecutive clock cycles, the FSM generates the parity bit $p = 1$ if and only if the number of 1s in the three-bit sequence is odd.

I really have no idea where to start with this. Any help/instruction would be much appreciated it!
Hey,

This question was on Che-g-g, so here you go:

<https://gyazo.com/2c421e0a8e58610c04cf32e50c7c6087>
<https://gyazo.com/75b938e2b79d9203c25ee89c3e8d7c5a>
<https://gyazo.com/50021ef08ff34582c7c3b4906829926a>
<https://gyazo.com/8ffec86d4ff1a0efb440914478e5366c>

Answer courtesy of [Union](#)

Physics Problem

Conservation of Angular Momentum and Linear Momentum

A meter stick is motionless on an icy surface (frictionless). A hockey puck is on a collision course towards the stick. The puck hits the stick at the 30 cm mark and is traveling perpendicular to the length of the stick.

After hitting the stick, the puck is deflected 30 degrees from its original trajectory and is traveling at half of its original speed.

Mass of a meter stick = 0.05 kg

Mass of hockey puck = 0.17 kg

Initial speed of the hockey puck = 9 m/s

- a) Choosing an origin at the starting position of the meter stick's center of mass, what is the angular momentum of the hockey puck before the collision.
- b) What is the angular momentum of the hockey puck after the collision (use the same origin)?
- c) What is the velocity (direction and speed) of the stick's center of mass after the collision?
- d) What is the angular velocity of the stick (assume it will rotate about its center of mass)?

A picture to go with the story...