



S T U D E N T H A N D B O O K

Getting Started

The **SMARTHINKING Home Page** is the starting point for all of your tutoring interactions. The Menu Bar can be found either at the top of the screen (as shown here), or along the left hand margin. In either case, it includes hot links to the following:

- **My Home Page**-displays this page.
- **About Me**-opens up a form that will allow you to change your personal information.
- **My Account**-provides access to information about the amount of tutoring time available in your account as well as a list of sessions completed to date.
- **Customer Support & FAQ**-provides access to information that will help you solve any problems that arise when you are using SMARTHINKING
- **Academic Resources**-provides access to the SMARTHINKING Writer's and ESL Writer's Handbooks, an Accounting Glossary, a Study Guide Handbook, and links to sites that provide support for mathematics.
- **Log out**-allows you to log out of your account when you are finished using SMARTHINKING.

Tutoring options are displayed in the center of the screen.



connect with an e-structor now! is used when you want tutoring right away.



submit your writing is used to send the draft of an essay or paper for e-structor review.



schedule a personal session is used when you want to make an appointment for future tutoring.



submit a question is used when you have decided to wait for a delayed response, rather than take time for a live session.

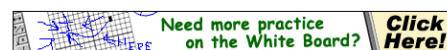


academic resources is used when you want to look for answers to your questions before engaging a tutor.

my file cabinet is located at the bottom of the screen. This is where you will find transcripts of your online sessions, copies of responses to questions you have submitted, and reviews/critiques of papers and essays submitted to the Essay Center.

Questions and Essays appear in the **Outbox** when they are submitted, in the **Inbox** when they are first returned, and in the **Archives** once they have been reviewed by you. The scrolling **Marquee** in the center of the file cabinet provides information about the SMARTHINKING service. The **Calendar** highlights any sessions you may have pre-scheduled.

The last item on the home page is the link to the practice **White Board**. When you follow this link, you will be taken to a place where you can practice using the white board tools.





connect with an e-structor now!

Live, drop-in tutoring is one of the easiest ways to quickly get the assistance you need. Simply select the subject of interest from the drop-down list.



The SMARTHINKING Whiteboard will appear with a message telling you to type your question on the whiteboard and click “Submit Question” when you are ready to work with a tutor.

Write your question on the whiteboard, and click **Enter Question** when you are ready to connect with a tutor. Detailed instructions on the use of the whiteboard are provided at the end of this document.



connect with an e-structor now!

Select an active subject and meet with an e-structor for a private session. [Tell Me How.](#)

Select a Subject
Select a Subject
Writing (All Subject)
Math en español
Basic Math Skills
Statistics
Geometry & Trigonome..
Calculus Single Vari..
Algebra
Physics
General Chemistry
Intro Accounting



submit your writing

When you have completed a draft of an essay or paper, submitting it to the SMARTHINKING essay center will allow you to have your work reviewed and critiqued. The personalized response you receive from a SMARTHINKING e-structor can be used to guide the revisions you make to your work. Responses are typically provided in about 24 hours, and will appear in your **Inbox** under **my file cabinet**.



submit your writing

Submit your writing and receive the tutor's comments from your Inbox (usu within 24 hours) [Tell Me How.](#)

Select a Subject
Select a Subject
Essay Center
Career Writing
Essay Center - HS
Spanish Essay Center

To begin, select the subject that reflects the type of writing you are submitting. Most academic writing will be submitted to the **Essay Center** (or **Essay Center—HS** if you are a **Middle or High School Student**). Use the **Career Writing** center for business writing, and our **Spanish Essay Center** if your assignment is written in Spanish (e.g. It is for a Spanish language class.).

Next, complete the form shown at right. As you are doing so, please take special note of the following:

- Your assignment description should **exactly** match the description provided by your instructor, so that the tutor will be able to confirm that your work matches the requirements of the assignment.
- If you are requesting help with referencing/citations for a research paper, please let the tutor know which referencing style you are using. We support both MLA and APA styles.
- If you are not sure what type of help to request, the goals of your assignment may provide some guidance. Also, know that the tutors will make sure that your review provides you with information needed to revise your work and improve the quality of your writing.

Choose the type of tutor you would like to have reviewing your writing. Choices include **First Available**, **ESL Specialist**, **Business/Technical Writing Specialist**, and **Creative Writing Specialist**. If your writing falls into a category supported by a specialist, it is best to choose that tutor group. The time required to review your essay is the same for each of these tutor groups.

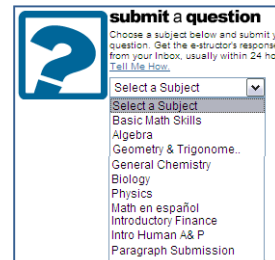
The last step in the process is to upload and submit your assignment. You will see a screen confirming your submission, and an entry will appear in your **Outbox**.



submit a question

Asynchronous tutoring is an alternative to live, drop-in tutoring that can be used when you do not have time for a live session, and are able to wait about 24 hours for a response.

To use this option, select the subject you want from the drop-down list. As with live tutoring, the whiteboard will open. Write your question on the whiteboard, and click **Submit Question**. A response will appear in your **Inbox** in about 24 hours.



Note: When you use this option, please make sure that you provide the tutor with specific information about the problem with which you need help. Specific questions work best. For example, ***I am having trouble adding fractions. Is $1/2 + 1/3 = 2/5$?*** provides the tutor with enough information to identify the source of the confusion, so that a detailed response can be provided. General questions do not work well in this format. For example, ***I do not understand fractions*** provides too little information for the tutor to provide a response targeted to the your problem.

Special Application: Paragraph Submission

One of the subjects available under *submit a question* is **Paragraph Submission**. This option allows you to submit a single paragraph for review E-structors will provide feedback for one higher-order concern and one lower-order concern for this paragraph

To use this option, select **Paragraph Submission** from the drop-down menu under submit a question. Then, enter the information below on the whiteboard either by typing it or by copying and pasting it from another document onto the whiteboard.

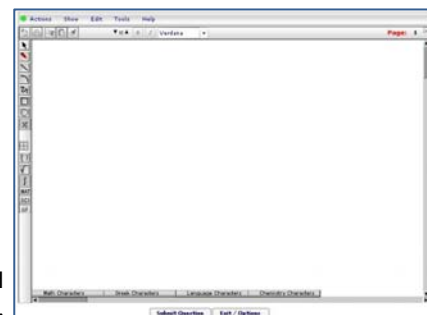
- A description of your assignment, preferably word-for-word as it was given by your instructor.
- Describe the type of help you need with your writing. Possible areas include the following:

Grammar and Mechanics	Introduction/Conclusion	Transitions
Word Choice	Main Idea/Thesis	Organization
Sentence Structure	Content Development	Use of Resources

- Enter your paragraph with the **Paste Text** tool (located in the Tools menu) using the following steps
 - Open your document within your word processor.
 - Copy your paragraph to the clipboard.
 - Return to the SMARTHINKING Whiteboard.
 - Choose **Paste Text** from the tools menu within the Whiteboard.
 - Place your cursor inside the text box, and use CTRL V to place your essay in this box.
 - Click the **Paste** button to bring this text to the Whiteboard.
- Click **Submit Question** to send your writing to an e-structor for review. You will receive a response typically within 24 hours.

The Whiteboard

You will use the SMARTHINKING whiteboard whenever you drop-in for live tutoring, submit a question, or participate in a pre-scheduled tutoring session. The whiteboard allows you and tutor to enter text, symbols, and drawings that identify and help answer your questions.



Entering Text

- Right click with your mouse and type at the point where you want text to appear.
- To delete text, place your cursor to the right of the letter (or word) you want to delete and hit the backspace key until you have removed all of the letters/words you want to remove. Each time you hit the backspace key, you will delete the letter to the left of the cursor.

Setting Text Properties

Use the property bar at the top of the whiteboard to establish the characteristics of your text. You must set the properties **before** you begin typing as changes cannot be made after text is entered.



You can set the **FONT** and **POINT SIZE** of your text, and you can determine whether it will appear as standard, **BOLD**, or **ITALIC**.

- Available **FONT**s include verdana, serif, and symbol. Click on the arrow to the right of the font name and select it.
- POINT SIZES** between 8 and 30 may be used. To adjust point size, click on the up or down arrow on the left side of the properties bar.
- Click on the **B** to make your text **BOLD**, click on **I** to use **ITALICS**.

Note: Your text will always be **red**, and your tutor's text will always be **blue**; these colors cannot be changed. This convention makes it easy to tell who typed what on the whiteboard when you come back to review your session archives.

Entering Exponents

- Use the up arrow key on your keyboard to move the cursor up to enter an exponent.
- Use the down arrow key on your keyboard to move the cursor back to the text field.

Pasting Text from Other Applications

- Choose **TOOLS** from the top menu bar.
- Select **PASTE TEXT**.
- Use **CTRL V** to insert the text you want to paste on the whiteboard
- Click **PASTE** to place the text on the whiteboard.

Using Special Language Characters

In addition to standard text, the whiteboard includes four special character sets: Math, Greek, Language, and Chemistry. Click on the name of the character set you want, and a pop-up menu will appear listing the available characters. Click on the character you want to use, and it will appear on the whiteboard. These menus may be kept open and moved around on the whiteboard to make them more convenient to use during your session.



Special Tools



Clear Board: Deletes all content on the current page.



Copy: Copies a drawing (not text) to the clipboard.



Print: Prints the contents of the whiteboard.



Paste: Places a copy of your drawing (not text) on the whiteboard.



Cut: Cuts/deletes drawings (not text) from the whiteboard.

The tools below are found along the left side of the whiteboard.

Most of the tools function in the same way. To use these tools:

- Select the tool by left clicking on its icon with your mouse.
- Left click on the whiteboard, and hold the key down while you drag to the right to create the image you want.



Use **Select** to mark text or drawings that you want to move, or drawings whose properties you want to change. Selected items will be placed in a box. You can move items around on the whiteboard by holding and dragging the yellow box. When selected, you can resize drawn items (but not text) and you can change their properties (weight or thickness and color).

Note: Leave at least 4 spaces around the perimeter of the work you want to move to ensure that text and objects are moved together.



Use the **Highlighter Tool** to draw attention to drawings and text. You can change the weight (thickness) and color of the highlighting by using the properties menu.



Use the **Line**, **Curve** and **Freehand Drawing Tools** to create lines, curves, and freehand drawings. Use the properties menu to change the weight (thickness) and color of these drawings.



Use the **Rectangle** and **Oval Tools** to create basic shapes. Select these items to reshape or resize them. Use the properties menu to change the weight (thickness) and color of these drawings.



Use this tool to **Draw Fractions** on the whiteboard. Select the tool and then click on the whiteboard. Enter the numerator of your fraction and hit enter to move to the denominator. Enter the denominator. Hit enter again to complete the fraction and move to the next step.



Use this tool to **Draw Rectangular Graph Paper** on the whiteboard.



Use the **Parentheses**, **Root** and **Integral** tools to place these symbols on the whiteboard.



Use the **MAT** button to choose one of the available math symbols.



Use the **SCI** button to choose one of the available scientific symbols.

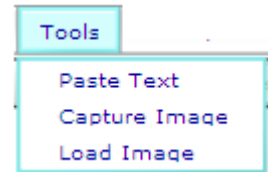


Use the layer button to change the order of items that have been placed on top of each other.



The SMARTHINKING Image Capture Tool

The SMARTHINKING whiteboard includes an **Image Capture Tool** that allows you to bring images or text to the tutoring session. Anything that you can display on your computer can be captured and sent to the whiteboard quickly and easily. Hand-written homework assignments that have been scanned into your computer or photographed with your camera phone, can be quickly and easily presented to your tutor for consideration.



The image capture tool is found under the tools menu within the whiteboard. Click on **TOOLS** and then **CAPTURE IMAGE** to access this option. Once you have accessed the tool, you will have three options: *Selected Area*, *Window*, and *Full Screen*. Instructions for using each option are provided. We recommend that the second option, **Window**, be used. It provides the simplest way to bring your work to the whiteboard.

Follow these steps to use the **Window** option:

- Open the document or image you want to bring to the whiteboard.
- On the Whiteboard, select the **CAPTURE IMAGE TOOL** located in the tools menu.
- When the **CAPTURE IMAGE TOOL** window appears, select the middle option, **Window**.
- Click **CAPTURE**.
- Click the icon on the Windows taskbar that corresponds to the window you want to capture. Click **OK** when prompted.
- The contents of the selected window will now appear in the **CAPTURE IMAGE TOOL** window
- Click on **SEND**, and you will be returned to the Whiteboard where your image will now be displayed..

Sample Math Interaction

http://www.smarthinking.com - Tutoring Platform from SMARTHINKING - Microsoft Internet Explorer

Actions Show Edit Tools Help

Page: 1

Um my question is find the gcf and lcm im having trouble with step 2 & 3

Hi Jennifer, my name is Trey Can you give me an example of the type of problem you are working on?

sure um find the lcm of 4 and 6

Okay, how would you start?

i would break it down like 2×2 for the 4 and $2 \times 2 \times 3$ for 6

Almost... the prime factorization for 6 is 2×3 - what's your next step Jennifer?

that is where i get stuck at i don't understand what to do then

Okay, we are looking for the LCM, least common multiple - let me ask you: is the LCM(4,6) larger or smaller than the original numbers

2 is used twice and 3 once - is that what you mean

okay... so the multiple of 4 & 6 is two right?

2 is a common divisor of 4 & 6, we are looking for a number that is a multiple of both 4 & 6

Can you list the first few multiples of 4 & 6?

4: 4, 8, 12, 16, 20, 24, 28 good and for 6: 6, 12, 18, 24, 30, 36

let's noticed that both 12 and 24 appear in both lists, 12 and 24 are common multiples of 4 & 6. You want the Least Common Multiple

so that's 12 correct!

okay but in the book, why do we have to break down the numbers to find that

We've found the LCM(4,6) = 12, but the method described in your book is more efficient when working large numbers

What is the prime factorization of 12, Jennifer?

$2 \times 2 \times 3$ exactly

$$\begin{array}{r}
 4 = 2 \times 2 \\
 6 = 2 \times 3 \\
 \hline
 \text{lcm}(4,6) = 2 \times 2 \times 3 = 12
 \end{array}$$

To find the LCM, we take the product of each prime number that appears in either factorization

Let's consider another example 8: $2 \times 2 \times 2$

12: $2 \times 2 \times 3$

good, and the LCM(8,12) will be $2^3 \times 3 = 24$

Well done Jennifer, do you feel comfortable with finding the LCM?

i was getting confused by what the book was showing

the gcd for 8 & 12 is 4 right?

yes - can you tell me how you found that Jennifer?

2 is in both lists twice

Good, you seem to be ready to try a few on your own.

thank you Trey... Bye for now

Math Characters Greek Characters Language Characters Chemistry Characters

Submit Question Exit / Options

Done Internet

Sample Essay Return

SMARTHINKING's E-structor Response Form (Your marked-up essay is below this form.)

HOW THIS WORKS: Your e-structor has written overview comments about your essay in the form below. Your e-structor has also embedded comments [in bold and in brackets] throughout your essay. Thank you for choosing SMARTHINKING's OWL; best wishes with revising your paper!

***Strengths of the essay:** Hi Irina. Welcome to SMARTHINKING! I'm Melanie, and I'll be reading your essay today. You'll find my comments in bold and [brackets] in the form below and in the body of your essay. This really is a very funny story. Your sister is right; it could happen to anyone. You've done a good job of letting us know not only what happened at the restaurant, but also how this experience affected you in a larger sense. We learn both that you are the sort of person who can laugh at a misunderstanding and that you are the sort of person who took that potentially embarrassing experience and used it to help yourself gain more confidence in talking to Americans. Good for you! The most interesting stories, like yours, include a message or idea larger than just the events in the story.

***Irina has requested that you respond to the Introduction/Conclusion:** As I mention above, you do a good job of telling us why this story matters. You give us that information through your introduction and conclusion. Your introduction lets us know what your experience of English was before the super salad and that you learned something from the experience. The conclusion lets us know what you learned.

***Irina has requested that you respond to the Organization:** You have also done a good job of organizing your essay. You give us necessary background information in the introduction. Then, you move through the events in chronological (time based) order in the body of the essay. Then, your conclusion tells us what you learned from the events. That sort of organization is quite clear. There are a couple of small places where I wasn't sure about the order of information. I have included notes about those in the body of your essay.

Transitions: You use dialogue well in your essay. There are some rules for presenting dialogue that you will want to pay attention to.

- Each time you switch speakers, start a new paragraph.
- Use commas to join dialogue to clauses like "she said" and "I replied."
- Commas and periods always go inside of quotation marks.

So, let's look at some sample dialogue:

- *Joe walked into the room. As he threw himself into a chair, he said, "Man, I had a rough day."*
- *"Oh?" replied Mary, continuing to stare at the television.*
- *"Yeah, you wouldn't believe what my boss did. I think I'll quit this job."*
- *"Mhmm," said Mary. She'd heard it all before.*

Take a look at this dialogue. How might you use it as a model to help you restructure your dialogue?

Word Choice: Make sure that you proofread your essay carefully. There are a few places where you replace a word with one that is close to the same spelling: for example, "though" with "tough." Try reading your essay out loud slowly to listen for these kinds of errors. Keep an eye out for other grammatical issues as well.

Summary of Next Steps: Irina, You've done a very nice job of giving your essay a clear structure and of telling us both this specific funny story and how it affected you. Now, as you revise, pay attention to the following issues:

- Look at the places where I have asked some questions about organization.
- Restructure your dialogue so that it follows the normal rules for presenting dialogue.
- Proofread carefully for the grammar issues I mention and other ones.

Thanks for sending in your essay! It was a pleasure to get to read it.

Melanie

Please look for more comments in your essay below. Thank you for using our service, and we encourage you to submit future essays.

SOUP OR SALAD?

One year ago, when I moved from Germany to America, I had a really hard time to understand the American culture because I didn't speak English so well and I also had problems to understand people. **[When we want to refer to a particular action in a noun-like way, we use the -ing form of the verb. So, I might say, "I love running," or "She likes talking to me." Here, you want "understanding."]** I often avoided face to face conversation with people because I was scared of misunderstanding, and I never answered a phone. I thought that I would never learn how to speak to people and not to be afraid of misunderstanding. However, when my sister came to visit me last summer, I learned that speaking to people in English can be extremely funny.

Last summer, before my sister visited me, I thought that I would never learn how to speak English. On the day my sister arrived from Colorado in San Jose, California, we decided to go to a nice Italian restaurant in a nice area of Los Gatos. In the restaurant, I wanted to impress my sister, so I decided to order food for her and myself. I taught today is a day where I won't be scared to speak to people because my sister is with me. My sister could speak English very well, so I wasn't afraid of misunderstanding, and I knew she would help me out if I have some problems with speaking. **[Here, you want a past tense. You might have "had some problems." "If I have" suggests that you are discussing something that might happen in the future.]**

When a waitress came to our table, I was ready to order food and to have a little conversation in English. The waitress asked me if we would like to have a soup or salad for an appetizer. I understood super salad. So in my mind, I pictured a huge super salad with a lot of lettuce, tomatoes, onions, and a blue cheese dressing. This imagination made my mouth watering and my stomach started to make noises. **["Imagination" is our ability to think of things. "Image" is something that we might see in our minds or with our eyes.]** So, I said to her: "Yes, we would like to have a super salad. The waitress looked at me very confused and asked me again: "So, would you like to have a soup or salad?" Now, I was very confused and I felt very stupid. So, I told her that we would like to have the super salad with some lettuce, tomatoes, and onions. "So, you want the salad", she said. "No, I don't really want salad, but you actually asked me if we would like to have the super salad": I replied. **[Using a comma after a quotation is correct. A colon can introduce a quotation sometimes, but it can't follow one.]** At this moment, my sister helped me out and I felt very embarrassed, but the waitress and my sister were laughing and having a good time.

At the end, even tough, I felt embarrassed, I thought that this misunderstanding is the funniest misunderstanding I ever had in America. My sister tried to make me feel better when she said that this could happen to anybody. I couldn't believe that I misunderstood something simple like soup or salad. I tried to forget this soup or salad moment but it was too funny to forget. On this day, we enjoyed our dinner together more then ever. **[The first part of this paragraph sounds like you are stepping back and reflecting on the experience from a distance, but the last sentence sounds like you are still telling us what happened in the experience. Shifting from showing us the experience up close to reflecting on it from a distance and back to showing it up close can be confusing. Could you stay focused on the details of the experience until you are ready to completely shift to discussing it? How might you change the order or wording of your ideas so that they seem clearer?]**

This soup or salad misunderstanding in the restaurant showed me that I shouldn't be afraid of any conversation with people. I started to meet American people and I started to speak better English. I was glad that I had experienced a funny misunderstanding because it gave me an interest in going out and meeting American people. When I go out to eat with my husband and we order an appetizer, I often think about my funny soup or salad moment and it makes me laugh. **[You do a good job in this conclusion of letting us know how the super salad moment has affected you. That's exactly the kind of information we want in a conclusion.]**

Sample Paragraph Submission

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Page: 1

Hi, Kelly! I'm Jincy, and I'll try to help you today.

I need help this paragraph it is a narrative paragraph I need help with grammar or punctuations or what can i do to improve it.

Meeting the person behind the computer (title)

Late one spring night I decided to meet Joey. I spent a year talking to him online before we met. We decided we were going to meet at Ham's. The food was not that great, but it helped calm the butterflies in my stomach. We spent alot of time discussing our conversations we shared online and what we thought of one another. I found myself wondering why did I wait so long to meet this wonderful person. As the night was coming to an end, we said our goodbyes and decided we wouls see one another the folling week.

There are some typos here (wouls; folling) but on the whole your grammar and sentence structure are pretty good, Kelly. So let's focus on the content of this narrative paragraph.

I like your first sentence, because it really captures our attention. How, we wonder, can a person "decide to meet" another person. Then we learn that you and Joey had already "met", online. You tell us that you'd been talking for a year. Could you tell us a little more than this? Okay, you'd been chatting for a year, but what was it about Joey (online) that made you want to meet him? A sentence about that would be helpful, and would bridge the gap to your next sentence (about deciding where to meet). And what sort of place is Ham's? Remember, your readers don't necessarily know about this place.

Finally, you should tell us in a little more detail about the conversation you had at Ham's. You say that afterward you wondered why it had taken you so long to meet Joey, and that he seemed "wonderful." But you don't actually show us how successful the conversation was, and you should. What did you talk about? What overall impression did he make on you? What sort of guy was he? ("Wonderful" covers a lot of ground, Kelly!)

The more detailed you make this, the more effective it should be.

I hope this has been helpful, Kelly.

Math Characters Greek Characters Language Characters Chemistry Characters

Submit Question Exit / Options

Done Internet

Sample Bi-Lingual Math Interaction

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Actions Show Edit Tools Help

Page: 1

The diameter of a tree trunk varies directly with the age of the tree. A 45-year-old tree has a trunk diameter of 18 inches. What is the age of a tree that has a trunk diameter of 20 inches?

A 47 years
B 50 years
C 63 years
D 90 years

I could use some help
Hello Edwin, welcome to smarthinking.com.
My name is Hernan.
Hernan, ¿hablas español?
Si, hablo espanol. ¿Entiendes el enunciado del problema? "Diameter varies diretly with age"
No, no se a que se refiere
El enunciado dice: "El diametro del tronco es directamente proporcional a la edad del arbol".
¿Puedes escribir la ecuación?
creo que sería $d = ka$

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Yes, exactly. "k" stands for the "variation parameter". Can you find this parameter from the given data? yes
Ok. Can you solve for k from this expression?
 $18 = k \cdot 45$
 $\frac{18}{45} = \frac{45k}{45}$ Exactly. Very good.
 $\frac{18}{45} = k$
Now, can you find the age of the tree with a 20 inch diameter?
I'll try $20 = \frac{2}{5}(a)$
 $a = 50$ Very good.

We can try to solve a slightly different example if you wish. ok!
Ok. Try to solve this problem: "x varies inversely with y"
En español: "x es inversamente proporcional a y" sería $x = k/y$
Can you write the equation asociated to this statement? Exactly. Very Good
What about the equation $y = \frac{kx}{z}$?
Can you translate this equation into a word statement?
y es directamente proporcional a x e inversamente proporcional a z
¿Bien, podrias traducirlo al inglés?
y varies directly with x and inversely with z
is this correct Hernan? Yes, this is correct.
Great. Thank you very much for your Help !
You are welcome!. Have a great day. Good bye.

Math Characters Greek Characters Language Characters Chemistry Characters

Submit Question Exit / Options

Done Internet

Sample Economics Interaction

Use a graph to show the impact on the price of German cars sold in US if the US imposes import quotas on German cars.

Hello and welcome. My name is Dr. Randy R.

We like to analyze many of our issues with demand and supply. As you think about the demand and supply of German cars, which is affected do you think by this quota?

I think that the supply will have to go up, forcing the price to lower???

What is an import quota? A set number of cars that have to be imported.

When a country does this do you think they are worried about too much of the product coming into the country or too little?

hm... for me, I worked at a sales position where we had quotas, it was hard for me to meet my quota daily, so that's why I though they would have to increase supply??!?.....

Interesting experience. I can see the confusion. In the case of foreign products the idea is usually to keep some of the foreign products out of the country to protect domestic businesses.

So the objective is to reduce the number of German cars coming in. I agree with you that this will affect supply but can you now see the idea is to reduce the number of German cars entering this country?

..... yes. so, if the number of cars is reduced, does that mean that supply will be lower and prices will go up?

Exactly. So when you graph this you will illustrate the market for German cars which is nothing more than the demand for and the supply of German cars.

so when I do a graph.. it will look like this:

okay, now I get it! thank you very much, I just needed help with the graphing!

This is why we are here. You are very welcome. Take care.

Sample Physics Interaction

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Actions Show Edit Tools Help

Page: 1

Below, the particles have charges $q_1 = -q_2 = 182 \text{ nC}$ and $q_3 = -q_4 = 200 \text{ nC}$, and a distance $a = 4.7 \text{ cm}$.

is it square with side a ?
yea

can you similarly show other forces on q_3 ?
good job!

What are the a) x _____ N and b) y _____ N components of the net electrostatic force on particle 3?

hello Lindsey, welcome to smarthinking.. Archana here :)

hello....

any work so far ?
not sure how to work it....

ok.. just a minute..
ok

the net force of $q_3 = F_{13} + F_{23} + F_{43}$ i.e. sum of all forces. ok?

now, q_1 and q_3 are both positive charges.. so what will be direction of force on q_3 due to q_1 ?
negative means?

can you show that in the diagram?

do you remember the formula to calculate force?
Use up and down arrow key on ket board to write suffixes.

$$F = k \frac{q_1 q_2}{r^2}$$

can you calculate F_{13} and F_{43} ?

$$F_{13} = \frac{9 \times 10^9 (182 \times 10^{-9}) (200 \times 10^{-9})}{(.047 \text{ m})^2}$$

we need not consider direction here, just magnitude. ok?

so $F_{13} = .1483 \text{ N}$ ✓ ?

similarly, what do you get for F_{43} ?
good :)
.1630 N ✓

now, how to calculate F_{23} ?
can i take F_{13} and multiply by $\sin 45^\circ$? nope..
is r same as a for charges 2 and 3 ?
nope... so first we need to find r here ok?

lets continue with this on next page.. ok?

Math Characters Greek Characters Language Characters Chemistry Characters

Submit Question Exit / Options

Done Internet

SMARTHINKING Hours of Service

	Summer Schedule June through August	Regular Schedule September through May
Basic Math Skills, Algebra, Geometry, Trigonometry, Calculus	Sun - Thurs: 9AM to 1AM ET Fri - Sat: 9AM to 6PM ET	24 hours a day, 7 days a week
Writing, General Chemistry, Physics	Sun - Thurs: 6PM to 1AM ET	Sun - Thurs: 9 AM to 2 AM ET Fri & Sat: 12 PM to 6PM ET
Accounting, Statistics, Bi-lingual Math	Sun - Thurs: 6PM to 1AM ET	Sun - Thurs: 12 PM to 2 AM ET Fri & Sat: 12 PM to 6PM ET
Economics	Sun - Thurs: 6PM to 1AM ET	Sun - Thurs: 3 PM to 1 AM ET Fri & Sat: 12 PM to 6PM ET
Intro Human A & P, Biology	Sun - Thurs: 9PM to 1AM ET	Sun - Thurs: 9PM to 1AM ET
Spanish	Available upon request via Prescheduled Sessions	Available via Submit Your Question, the Spanish Essay Center, Prescheduled Sessions
Advanced Subject Suite		
Organic Chemistry, Introductory Finance	Sun - Thurs: 9PM to 1AM ET	Sun - Thurs: 9PM to 1AM ET
Mathematics Beyond Calculus II, Advanced Statistics	Available upon request via Prescheduled Sessions	Available via Submit Your Question and Prescheduled Sessions

- **Live Sessions** are metered to the minute + five minutes for archiving.
- **Submit a Question** -- metered at 20 minutes per question; available 24 hours a day, 7 days a week.
- **Submit Your Writing** -- metered at 35 minutes per essay; available 24 hours a day, 7 days a week.
- **Essay Center - 1 Hour Review** -- where available, this option is metered at 60 minutes per essay plus 5 minutes for archiving, and is available 24 hours a day, 7 days a week.
- *Note: Summer schedule begins at 9 AM on the Tuesday after Memorial Day; regular hours resume at 9 AM on the Tuesday after Labor Day.*
- *Note: Drop-in tutoring will not be available during holiday closures..*

Basic Setup

Memory

Windows PC = 16MB

Apple Mac OS = 32MB

Connection Speed

56K modem recommended; 28.8K modem will also work without major problems.

Browsers

Windows PC users need:

Firefox 1.0.4 or higher
Internet Explorer 5.1 or higher
Netscape 6 or higher

Apple Mac OS users need:

Firefox 1.0.4 or higher
Internet Explorer 5.1 or higher
Safari 1.3 or higher

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Settings and Plug-Ins

- Pop-ups must be disabled for the SMARTHINKING site.
- JavaScript must be enabled to use this site.
- Session cookies must be enabled for your logged in session on our site to work properly.
- Java runtime must also be enabled if you will be using the screen capture tool in the SMARTHINKING whiteboard.
- ActiveX must be enabled if you will be using the screen capture tool in the SMARTHINKING whiteboard and are using Internet Explorer.
- Flash® Player must be installed: 8 or higher for Windows 98/NT/2000/XP or Apple Mac OS X; 7.0.19 or higher for Apple Mac OS 9

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