Doos: hi all
Frank: Your awake and bright this morning....Hi doos
Doos: hi annie, frank
Annie: yes, its a beautiful sunny sunday morning here
Frank: Iahhhh.......moi jelouse
Annie: let me guess,   = you are jealous
Frank: lousy French but heh it's midnight
Frank: yes
Annie: lol
Doos: j'accuse
Annie: come over here
Frank: YES
Frank: Lots of my family went in the old fays on the ten pound tickets
Doos: or for free when they took a loaf of bread
Frank: mmmyes that as well
Annie: i haven't been so well, so missed half of forum posts this week
Frank: though I'm sure annies lot were respectable guards...lol
Annie: I saw there was lots of quizes
Doos: heh
Frank: aw...you sick?
Annie: i am always sick
Frank: I gave up reading them for a while....took up too much study time
Annie: hey, i guess i missed out on H&A again
Frank: That's a shame Annie...you always seem so..together
Annie: and it was my friday, when i bid
Doos: too much quizes takes the fun out of it
Annie: so i was well beyond 10 pm
Frank: yes I agree doos...one at a time lets you think
Doos: I like ars' idea
Frank: and you already asked for one at full price
Annie: yeah, so there might be another one
Frank: Tell rj you want his
Doos: demand it
Frank: yessss
Annie: but i don't think Robert had the last one, he said
Frank: said he was keeping one for himself
Annie: actually it was good to get the auction started again
Frank: yes
Doos: annie: demand one, with a whole set of reference stones
Frank: I wanted the crystal set from before the crash
Annie: yes
Frank: ...but not just for ten days
Annie:
Annie: and modo was 8 pm in california
Frank: it's an injustice it is
Annie: do you think i should stamp my feet
Frank: do you have calimerc in oz
Doos: oh yes
Doos: calimero?
Frank: a cartoon of a little bird who thinks the world unjust
Doos: the duck with the eggshell on his head?
Frank: his punchline is it's an injustice
Frank: yes
Annie: yes
Doos: "cos you are big and I am small, it's not fair"

Frank: never knew he was a duck
Annie: wack wack, wack
Doos: lol
Frank: lol
Annie: lol
Frank: Is jen coming
Doos: she said she would
Annie: yes, i think so. if she doesn't she'll be on detention
Frank: I've only got nine questions tonight
Annie: she knows how tough we are
Annie: oh wow
Frank: probably generate another twenty
Frank: we can serialise them
Doos: oh dear
Frank: sorry
Doos: I think I have a last minute engagement
Frank: lol
Frank: at midnight?
Frank: does your wife know?
Doos: yes yes, that is how we do that here
Doos: my wife (girlfriend) left me years ago, cant blame her
Annie: what, you and your charm, she left, she didn't know what she missed out on ??
Doos: I'm just too pretty for one woman to handle
Annie: lol
Doos: okay, the clock struck
Doos: time for the studies
Frank: Ok first pinacoids
Annie: we wont turn into pumpkins
Doos: do you remember my matchbox example from two weeks ago frank?
Frank: If I have a hexagonal crystal which terminates on a domed end...Is the pinacoid only at the top where
it is perpindicular to the a & b axis or does it include the angles?
Frank: yes...great analogy
Doos: perpendicular to the c axis
Frank: I've used it to imagine tetragonal and orthorhombics
Frank: so only the "ridge of the roof
Doos: its like chopping of the head of an egg, fist you have a dome, then you cut it and its a pinacoid
Frank: what would the slanted faces leading to it be reffered as
Annie: they are normally paralles pairs of similar faces
Doos: depends what shape they are
Frank: ah in a hexagon they would be trapeseiums
Frank: trapezoids?
Doos: I think we cal that a hexapyramid with a pinacoid
Doos: annie?
Annie: i can't spell, now, but yes
Frank: ty
Frank: next...define pedion
Annie: they are named according to their lateral axis to which they are parallel to
Frank: ty
Annie: like the base pinacoid is terminal face
Doos: frank, imagine an egyptian pyramid (again)
Frank: ok

Doos: the base on which it rests is the pedion
Frank: ahh not the top
Doos: if you would mirror the pyramid, you would get a octahedron
Frank: yes
Annie: example , a matchbox consists of 3 pinacoid forms
Frank: but all three cant be parrallel to the a& b axis
Annie: no, the longest of the macro and the shortest is brachy
Frank: Technical terms?
Annie: as in the place which topaz cleaves is parallel to basal
Annie: ok sorry,
Frank: no I want to learn them
Annie: well, since we don't have a blackboard to draw and show you
Annie: hello
Annie: ddddd
Annie: ok
Frank: with a double pyramid is the pinacoid the shared base?
Annie: sorry, my computer went all funny
Annie: now its working again
Frank: how does that "enclose"
Doos: holdon, look at this picture http://yey.be/orthorhombic-matchbox.jpg
Annie: you know how we said that there are 3 crystal systems that need that, Frank
Doos: will that help?
Annie: are you loolking at 'yey'
Frank: going now...had to open another window
Frank: No I'm not....computer refuses to open another window with thwe chat going....I promose to reformat
it...soon
Frank: damn dinosaur
Frank: I'll check it out later and we can discuss it on the next "subjectless" chat
Frank: sorry
Doos: it is a drawing of the shell of a matchbox on one of the open sides
Doos: so you can imagine
Frank: yes
Doos: so it stands upright
Frank: yes
Annie: we may have to come up something easier to explain
Frank: are pinacoids always flat planes?
Doos: maybe we should explain what an "open" form is
Doos: yes
Annie: this matchbox Doos has is open at the top
Frank: so any domed parts are after the pinacoid?
Annie: so thats where you would have your pinacoid to close it or (enclose) it
Frank: yes annie
Annie: does that make sense
Frank: yes
Annie: have a look at this matchbox later
Annie: if you can't open another window, for now
Frank: I got that last lesson...what I want to know is where the pinacoid is on a domed termination...at the
end of the dome or at the base
Annie: just excuse me, i have to get another coffee
Doos: okay frank
Doos: imagine that a pyramid tops the matchbox

Frank: yes
Doos: that will then be a rhombic pyramid
Frank: yes
Doos: not a true pyramid as in egypt, because 2 sides are wider
Frank: yes
Doos: then you have a orthorhombic prism with a rhombic pyramid
Frank: yes
Doos: (the matchbox is orthorhombic)
Frank: yes
Doos: makes sence?
Frank: yes
Doos: then you take your knife and top of the pyramid (like with an egg)
Frank: yes
Doos: then you will have an orthorhombic prism with a rhombic pyramid and a pinacoid
Frank: the pinacoid being the flat termination point of the prism
Doos: the pinacoid being the flat part on top
Frank: ??
Doos: yes
Annie: back
Frank: ok thats exactly what I wondered
Frank: thank you
Doos: read back annie, see if I messed up .. I'll get some tea
Annie: great, so, its making sense
Frank: yes
Annie: i think that well said Doos,
Annie: Frank, are you happy with that
Frank: Yes perfect....and easy enough for even me...next question....define pedion
Doos: now frank, your next question should be "why is that called a pinacoid and not a pedion?"
Frank: sorry that sound a bit intense and short
Annie: pedion is only when there is half of that particlar face, that hasn't formed as a full part
Frank: I'm not sure how to define pedion....seems like its only got two dimensions
Frank: from the drawings I have
Doos: well frank, what I just called a pinacoid is just half of the pinacoid
Frank: like half a plane then dribbles away to unformed structure?
Annie: yes, only half a face
Doos: frank, imagine the previous example again
Frank: yes
Doos: the rhombic pyramid with a pinacoid
Frank: yes
Doos: at the opposite end of the prism, that would be repeated (under ideal circumstances)
Frank: yes two perfect terminations
Doos: so there will be two flat terminations
Frank: yes
Doos: the two terminations TOGETHER are named a pinacoid
Frank: ahhh.....and only one is a pedion?
Annie: one of those flat terminations will not be there
Doos: so you need two flats to form a pinacoid
Annie: only one fill be
Annie: remember they need to be parallel pairs of similar or same faces

Annie: so, say one bottom and top
Annie: or side to side
Frank: and if only one has formed (the other being unfinished like a amythest broken from a gourd) its
classed as a pedion?
Doos: uh no
Frank: lol
Frank: doh
Doos: it's all theory
Frank: Can I say ...A pedion is half a pinacoid
Frank: or one face of a pinacoid
Doos: yes, I guess
Annie: pinacoid is when there is two of those same faces enclosing space
Frank: OK thanks....it's clear I think...a pedion just terminates an end...but a pinacoid encloses the
crystal
Annie: yes
Frank: eureka
Doos: I don't think you can cut a crystal at the base and then call it a pedion
Annie: sometimes they may look funny in real life
Doos: or can you annie?
Frank: but if you cut it at both ends it can be called a pinacoid?
Annie: like a damburate never has full forms, its always broken at the bottom or something
Annie: or it its cleaved then it may have perfect plane at bottom, so you can rest it on the table
Annie: like topaz and danburate are so similar
Doos: it has to be done by nature frank (and not by cleavage and friends)
Frank: so I have to imagine the crystal into finished form ignoring breaks etc?
Annie: both orthorhomic
Annie: yes
Annie: but the differences in those is the lozenge shape when you lookfrom top
Doos: we need a mistery guest for this
Frank: why?
Annie: and you could see how danburite would stretch side ways and would have small pinacoids on top maybe
Annie: we need other people to help us out
Frank: no your doing excellently
Frank: can I go to next question?
Annie: thanks Frank
Frank: no thank you Annie...and Doos
Doos: frank: because it is an interesting subject
Frank: OH YES
Frank:
Annie: i think crystallography is one of the most imperative subjects in gemmology
Frank: dont you think the various couses sort of skim over it?
Doos: yah
Annie: yes,
Frank: I'm reading geology websites for information
Doos: miller indices etc are just toched
Annie: and we always say, how well you understand crystals is all related to everything else
Annie: see i never understood miller indices when i did gemmo,
Frank: I'm comming to miller in a bit doos...

Doos: heh
Annie: then when i got to diamonds, it all made sense
Doos: next question frank
Frank: So my question about which system is used for notation in gemology numbers or letters...we use
millersa system thAN?
Annie: Jen is definiately on detention now
Annie: she didn't come
Doos: yes she will be
Frank: crap spelling....sorry
Doos: miller indices are used to descrive the planes
Frank: In a polymorph group can the same chemical makeup form in different crystal syatems?
Doos: or do you mean 2m/ etc?
Doos: yes frank
Frank: more like (110) or {010} or even [111]
Doos: those are miller indices yes Frank
Frank: OK
Doos: want me to explain them?
Annie: that is description of crystal faces determining if it is parallel to two axes
Annie: and intersecting to third
Annie: pr parallel to others
Doos: frank, remember the math classes (x,y,z coordinates)?
Annie: so common faces can be either described by letters like xyz
Frank: yes
Annie: or exporessions such as cleavage parallel to 010 or twinning on 111
Annie: and so on
Doos: now in dr Seuss language?
Annie: so if two points - parallel to a face to an axis, it is considered to be cutting that axis,
Frank: I sort of understand....I just wasn't sure if it pertained to gemology or just to geology.....the cat
in the hat stepped in on the mat?
Annie: you hardly use it in gemmo
Annie: like i said, only if you were to use it for cutting properities and stuff like that
Annie: you would need to know
Frank: Yes the gemmo books are very thin on crystallography
Doos: can I have a go at this?
Frank: course doos
Doos: imagine a cube
Annie: of course
Doos: the top plane would be pierced by the c-axis
Doos: or the z coordinate
Doos: same thing (follow me till now)
Annie: c is z = right
Doos: yes
Trax entered the room.
Doos: hi trax
Trax: Hi Doos
Annie: hi Trax
Frank: hi trax
Trax: Hi all..
Trax: Annie..Frank

Annie: nice to see yu
Trax: Ty..and you guys too.....
Annie: Trax, we are just in middle of miller indices
Doos: the top plane of the cube is only pierced by the z axis, so it will be notated as 001
Frank: yes
Trax: OK
Doos: the first 0 is for the x coordinate (which doesnt touch the top plane)
Frank: yes
Doos: the second 0 will be for the second a (or b) axis, which doesnt touch the topplane either, so it gets a
0 aswell
Frank: yes
Annie: yes
Doos: the 3rd is the z axis which does touch the plane so it gets cerdited and will be 1
Frank: yes
Annie: we are doing well
Doos: so what will be the indices for the frontplane?
Frank: 100?
Doos: almost
Frank: or 010
Trax: 010
Doos: yah
Annie: yep
Doos: it is the y coordinate
Frank: is the front plane refered to the a or b axis as a rule?
Doos: what is the right plane?
Doos: the b
Frank: 100
Doos: good frank, and the left plane?
Trax: 100
Frank: 100 but with a negative on the 1?
Annie: start with negative
Doos: very good frank
Frank: ok -100
Doos: yes, the - should be above the 1, but that is hard to do on chat
Annie: -010
Frank: back plane
Annie: very hard indeed to understand in a chat
Frank: I understand it should go on top
Trax: 1 wears - as a hat...lol
Doos: heh
Doos: hey trax, all well?
Frank: And as a rule only lapiderists use this in gemmology?
Annie: yes
Annie: we need a lapidariest in here
Trax: yes..doos..is is 20 years when I last studied all this..but great to go over all over again..
Annie: welcome Trax
Doos: me aswell trax, I'm rereading it all again for these sessions
Trax: ty Annie
Frank: Heh does that mean I got 1 pupil and 3 teachers.....heaven
Annie: if you dont come each week, you'll get into detention, you understand that don't you

Frank: and sometimes she canes us....thats the best part
Annie:
Trax: lol...yup..and fees to pay too
Annie: yep, got the whip here right beside me
Frank: no fees trax
Frank: unless you want to donate
Frank: this is like the red cross
Annie: lol
Frank: help you like it or not
Trax: Where were you when I was a student...lol
Frank: so next question ?
Doos: frank is becomming a spoiled brat, I think he pays jen to not show up
Annie: ok
Frank: lol.she does it for the duty free ciggies
Annie: lol
Trax: Doos...I general..even the mineralogists..also use the (-)negative notations for the left
planes....regular
Annie: she is still not here.... definetely in detention now
Frank: funny the americans have the easiest slot at the moment and none of them come
Doos: yes trax, no other way to do that on a typewriter
Trax: Yes Frank..they have it TOO good...lol
Frank: Ok tetragonal syatem...a and b planes equal in length?
Annie: well, modo said it was too early for her - she should go to bed early and get here fast
Doos: yes frank, equal
Doos: also in angles
Doos: she is working
Annie: Go on Doos, we are listening to you
Doos: that was it
Frank: but if the crystal is rectangular rather than square then the a and b axes would have to go corner to
corner to remain equal
Doos: heh
Doos: uh then it is orthorhombic
Trax: yes..Frank..Two equal horizontal..one vertical at right angles
Doos: so not equal in size, but equal in angles
Frank: ok orthohombic is equal in angle but not in length but tetragonal is equal in length and angle
Frank: so must be measured as diagonals
Doos: you don't measure the angles diagonal in those systems
Doos: that is cheating and being a smartypants
Trax: I think it is easier to think in planes..rather than angles...in the first instance
Frank: I didnt think so....but if a tetragonal crystal is rectangular how can the a and b axes renain the
same size?
Doos: they also need to intersect at the same angles frank
Trax: Think of a cube as one side shorthed..or elongated
Doos: not just the lengths make the system, its a combination of both
Frank: yes....90 degrees but how can they be the same size?
Frank: in all the books I have it states the c axis is longer or shorter but the a and b axes are the same
size....how can I make sense of this??

Doos: frank: the a is the one going from left to right, the b is going from front to back
Doos: okay an update is needed
Doos: frank the matchbox again
Annie: oh doos, last time i said that, i was questioned how it can be from left to right or front to back
Doos: put it on one of the open sides
Annie: otherwise jen will be chasing you with the whip
Doos: heh
Doos: still with me frank?
Frank: yes
Doos: now pierce a needle through the frontplane all the way to the back
Frank: yes
Trax has left the room.
Doos: now pierce one from the left plane through the right one
Trax entered the room.
Annie: hello
Doos: there you have the a and the b axis
Frank: yes
Frank: hi trax
Annie: Trax, you may need to hit your keyboard, otherwise chat kicks you out
Doos: they are not equal in length (when measurered inside the crystal)
Frank: but at differing lengths
Trax: Sorry..every time I come into this chat room..I get booted out..
Frank: yes true doos
Trax: I am with you Doos..
Doos: but they do intersect at 90∞ to eachother
Frank: yes
Doos: now pierce one from the top to the bottom (the c axis)
Frank: yes
Doos: that is also different in length
Frank: yes
Doos: but intersects at the other two at 90∞
Frank: yes
Doos: that is orthorhombic
Frank: so orthorhombic?
Frank: yes
Doos: I'm almost done
Frank: sorry we type at the same time
Doos: if you now take away the a and b axes
Frank: yes
Doos: and pirce them from corner to corner (horizontal)
Frank: yes
Doos: then those two would be of the same length in some miraclous way
Annie: Trax you from europe
Frank: yes...maths is true
Doos: but the angles will no longer be at 90∞
Frank: ahhh...yes also true
Doos: so that isnt the way to do it
Frank: no I see that
Trax: Yes Annie..based in London
Doos: I might have messed up the a and the b axis along the way, but you get the idea
Annie: ok great, i wanted you to hit your keyboard for me
Annie:

Trax: thanks Annie..
Doos: frank: in the tetragonal system it doesn't matter if you do it diagonal, the outcome will be the same:
same lengths and at 90∞
Annie: ok, Doos, you doing good
Frank: yes but how to determine the difference between a tetragonal description (which states a & b are equal
and an orthorhombic where they are not?
Doos: but that is not good practice
Doos: well in a tetragonal sustem there is no b axis (it is called a2)
Frank: no not at 90 degrees if the shape is rectangular?
Frank: ahhh..a2....is this like an allowed cheat
Doos: if you pierce 2 needles diagonal through the matchbox, they will not be at 90∞
Doos: test it
Frank: I see it in my mind
Frank: so the 90 degrees rule takes precedence over the same length rule
Doos: they will be at the same length, but that is not how we measure it, we could do it that way... but then
we would need to rewrite all the textbooks
Doos: no, its the combination
Annie: yes, the combination in relationship consists of axes
Doos: just don't measure it diagonal, or we will all be in trouble with the 19th century crystallographics
Frank: so a perfect (Ideal) tetragonal crystal would be square looked at from the c axis
Doos: yes
Annie: a1 a2 & C
Annie: two equal and unequal of C
Doos: all at 90∞
Trax: As per 'Read' - since both a and b are equal..they are represented as 2a (2 x a) and are
interchangable..
Frank: which leads to my next question nicely.....your doing grand work here doos
Annie: yes frank.
Doos: heh, I'll make some tea meanwhile.. anyone else?
Annie: Doos is amazing
Annie: lemon for me
Trax: Mine is with sugar..thanks Doos...lol
Frank: in a tetragonal crystal the c axis is either shorter or longer than the a and a2 axis (lol)
Annie: ok, tea break
Frank: sorry you all want to stop and continue next week.....I get carried awy
Trax: yes Frank...lol
Doos: tea for all
Annie: its fine, we can do another 15 minutes
Annie: ok thanks this tea tasts great
Doos: I'm not tired
Trax: don't forget the cakes..Doos...lol
Doos: oh dear
Frank: I'm saving myself for a wee whiskey when this is finished
Doos: wish I never offered
Annie: what are we having, donuts
Annie: donuts with jam

Doos: frank: as trax said, yes
Frank: okay...if theres donuts then count me in
Frank: you want to stop yet?
Trax: yes donuts..better for Frank... with the hole in the middle...it won't have the c-axis...
Frank: I got enough questions for years and years
Doos: in theory, you could make the c axis the same size as the a axes
Frank: a3 no doubt
Annie: yep and we won't use the microscope to anaylize it
Doos: then you have a cubic tetragonal thingy
Frank: no inclusions in the hole at any rate
Trax: yes..with jam..lol
Annie: yummy
Doos: but forget that frank
Frank: thats my question doos ...welllanticipated....would it be tetragonal / cubic/ or what?
Doos: tetragonal, but cut off at some part
Trax: hey any of you have read..Cartiers.. feature in the Journal of gemmology...regarding the Double refraction...you would need a good understanding of them 'axis'....
Frank: but all those extra symmetries????
Annie: join the club Trax
Doos: yes we discussed that a bit trax, interesting article
Trax: oh ok...yes very interesting
Annie: we were discussing this with Doos last week, when we wereall alone
Annie: don't you find that interesting, that the definition is now being changed
Doos: frank, nature will not form it that way (normally)
Frank: missed it....discusion and all...
Trax: 'we were all alone' !!!!!!!!!!!!!!!!!!
Annie: no we understand, you had to attend a dinner function at school
Annie: Doos & I
Annie: Trax
Doos: frank, it is an article in the journal of gemmology
Trax: oh ok..lol
Trax: yes Annie
Annie: ok
Frank: 4 am....washing dishes and putting away table
Annie: oh gosh, you probably didn't get to bed till the morning
Frank: so while the c axis is trying to be longer or shorter there is no possibility in nature of it ending up the same size?
Frank: 6am
Frank: same for the kids
Frank: long lie on Sunday though
Annie:
Annie:
Trax: where are you all based..
Doos: frank, the final result is what we see as a crystal, the inner structure will stay tetragonal (at a molucular level)
Frank: raised about £2000 for the school though
Doos: not bad
Trax: well done Frank
Frank: ok doos I can accept that
Trax: are you in the UK Frank?

Annie: australia, Traz
Doos: Holland here
Trax: Ok Annie
Frank: live in France for past 12 years....Scvottish by inclination though
Annie: sorry, i missplelled your name Trax
Annie: hmm , so inclined axis you have, hey frank
Trax: Ahhhhh..I love Scotland..nice place
Doos: taz the tasmanian devil?
Frank: I mispelled Scottish....could face banishment or decapitation for that...lol
Annie: lol
Frank: I love it to trax....not enough to live there though
Trax: Worse....they'll take away your scoth away from you...! lol
Frank: lol
Doos: they didnt build that wall for nothing
Trax: Frank I studied at St. Andrews...loved it there
Frank: Romans built it to stop us kicking there arses ...almost bankrupt the empire to hide from us....ah
it's nice to be scots
Frank: I'm a Fifer born and bred Trax....From levenmouth
Doos: when I get to the orthorhombic thing on my website, I'll put that diagonal axes thingy in my FAQ's
Frank: Are you going to post them on the forum...and the previous Guru chats too
Trax: Fifer...well well
Doos: sure, or do you have any objections?
Annie: oh yeah Doos, the previous logs, can you make a new thread, where we can put them all
Doos: in the FGA forum?
Annie: yes
Doos: ok
Frank: no I have in my gemology folder on my pute... everything in folders except YG, Geminterest and
yey...think your building one of the easiest to understand websites on gemology around
Annie: Trax, you just joined us, didn't you, we had a crash of the forum couple of weeks ago
Trax: Doos ..do you put all this on your web site too..?
Doos: yes
Trax: I gathered that from the messages Annie...shame..
Annie: yes, but it couldnt be helped
Doos: frank, I'm just a simple soul, so it comes naturally
Trax: wealth of information lost..
Frank: he makes crystallography my 10 year old can understand.... and his colour and clarity section is
....simply the best
Annie: yes, he is very rare in these things, thats why he is the "doosite"
Annie:
Doos: enough
Annie: oh
Doos: I hate blushing
Frank: doos has a knack for reducing the complicated to matchboxes and pyramids....Annie has a brain we all
want to download and quotes facts and figures form her head like an encyclopedic autist...between them I
reckon I'm having the best gemmo education around

Trax: I will have to check the site out...is there a link to it from your profile...?
Doos: trax: you were an hour late, did you misunderstood the time or couldnt make it earlier?
Doos: I'll put it in there again trax .. http://yey.be
Trax: I did understand the time..but couldn't make it back in time...sorry
Doos: thats okay, just making sure I didnt confuse everyone with the times
Annie: ok, its fine, you can read the first part of this chat
Annie: no its its 11 GMT and 5pm Roberts time in San Antonio
Trax: is this event every Sat.??
Doos: yes
Annie: yes
Annie: well my sunday
Trax: Ok..thanks..now I know
Doos: for 3 months now or something .. I lost track
Frank: last question?
Doos: shoot
Frank: rotary inversion axes....are these common...are they included when quoting the the number of axes of
symmetry in any crystal syastem...or are they anomalies?
Frank: sorry last three questions
Frank: lol
Doos: those are the negative ends of the axes (if I remember correctly)
Doos: anyone?
Annie has left the room.
Trax: hmmmmmmmm..lol
Doos: heh
Annie entered the room.
Frank: In the example I saw it was when the two wnds of the crystal were terminated at 90 degrees from each
othe
Doos: went for a walk annie?
Annie: sorry, i got kicked out
Trax: wn annie
Trax: *wb
Annie: but thats because someone was trying all me
Annie: and my phone cuts in on me
Doos: I'll look it up if no one knows it ofhand frank
Frank: when rotated 180degrees on the a or b axis then rotated 180 degrees on the c axis then there was
symmetry
Jen entered the room.
Doos: hi jen
Annie: ahhh thats a nice way of putting it
Annie: Hi Jen
Jen: hi
Trax: Hi Jen
Frank: Jen.......hi
Jen: hi
Jen: have i met trax before
Trax: nope
Doos: ah frank, might be the miller indices
Doos: the negatives
Annie: Jen, you are in detention for today
Annie:

Jen: i am
Jen: ok
Jen: i understand
Annie: you better sit tight for now
Jen: i will for now
Frank: I got this from "an introduction to crystallography and mineral crystal syatem....I think it was on
the awesome rocks website. Its written by Mike and Darcy Howard
Annie:
Jen: we may put up the christmas tree tonight
Doos: rockhound frank?
Frank: yes
Doos: good site
Frank: yes
Frank: but more into geology than pure gemmology
Doos: I have a site that explains it with handprints
Frank: hard to devide the two in my head
Doos: http://www.iucr.org/iucr-top/comm/cteach/pamphlets/14/node3.html
Frank: I'll try it tomorrow whan I can open more windows....will you log this and link it with the previous
guru chats onto yg?
Frank: please
Frank: so everyone can get the benifits
Doos: ok
Frank: ty
Frank: OK jen....lol....over to you I'm plum outta questions
Doos: maybe someone on the forum is willing to make a thread of it
Frank: I'll do it if you like
Jen: honestly i have no questions for today
Annie: you been spending too much time with santa
Jen: nope
Annie:
Jen: with myself
Frank: or post them in the "guru chat" posting
Trax: Hi Jen..I have just joined recently this forum and YG...nice to meet you
Jen: yes you too trax
Annie: just joking Jen
Jen: yes i know annie
Annie: ok
Jen: ok
Jen: lol
Doos: anymore questions, or can I go log this? the chitchat can go on
Annie: i get scared, when you answer "nope"
Jen: on my side doos you can go log
Jen: don't get scared annie
Trax: Ty Doos...
Frank: Go log Doos...
Jen: tree time maybe tonight
Doos: ok brb