



KSR Follow-Up Training TC 2100



08 May 2008

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Agenda

- Brief Overview of KSR
- Obviousness Examples
- Other Obviousness Topics

NOTE: Additional information is contained in slide notes for some of the presentation slides.

KSR Summary

- The Supreme Court decided that the Teaching Suggestion Motivation (TSM) Test that the Federal Circuit espoused is a valid approach, but not the only way to determine obviousness.
- Graham v John Deere is still the controlling case on obviousness and all 103 rejections must show a reasoned Graham v Deere analysis.

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The Court also warned against too rigid an application of TSM.

KSR Summary

A key to supporting any rejection under 35 U.S.C 103 is the clear articulation of the reasons why the claimed invention would have been obvious.

Prior art is not limited just to the references being applied but includes the understanding of one of ordinary skill in the art, and the common understanding of the layman.

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Examiners may rely on official notice, common sense, design choice, and ordinary ingenuity, for example.

KSR Summary

One or more of the rationales set forth in the following slides may be relied upon to support a conclusion of obviousness.

Note that the list of rationales provided herein is not intended to be an all-inclusive list. Instead, it is intended merely to provide examples of analysis which would meet the necessary burden to establish a *prima facie* case the claim in question would likely have been obvious to one of ordinary skill under the Graham v Deere analysis.

Rationales for arriving at a conclusion of obviousness suggested by the Supreme Court's Decision in KSR include:

- (A) The Teaching Suggestion Motivation Test (TSM);
- (B) Combining prior art elements according to known methods to yield predictable results;

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For those of you with great memories I've changed the order of the rationales from last summer.

I've lead with TSM to emphasize that this is still a very effective method of making a case of obviousness.

A good TSM rejection will preempt most arguments of impermissible hindsight.

Additional Rationales:

- (C) Simple substitution of one known element for another to obtain predictable results;
- (D) Use of a known technique to improve similar devices in the same way;
- (E) Applying a known technique to a known device ready for improvement to yield predictable results;

Additional Rationales:

- (F) “Obvious to try”-choosing from a finite number of identified, predictable potential solutions, with a reasonable expectation of success; and
- (G) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art.

Note that the list of rationales provided above is not intended to be an all-inclusive list.

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One should pick the rationale or a few of the rationales that best fit your fact patterns.

(A) The Teaching Suggestion Motivation Test (TSM) Example

The findings for this rationale are:

- 1) What A teaches;
- 2) What A doesn't teach;
- 3) What B teaches;
- 4) What is the level of skill in the art; and
- 5) Why it would have been obvious to modify reference A with B including a teaching, suggestion, or motivation.

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B doesn't have to be a second reference. It can be official notice or the base reference itself. Typically, however, it is a secondary reference.

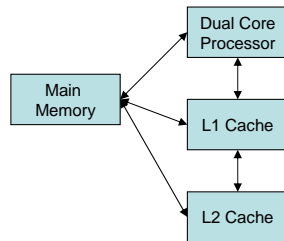
The level of skill in the art does not need to be explicitly articulated in the rejection if it is clear in view of the record.

Remember when writing a 103 rejection using 3 or more references that additional steps would have to be added. For example what AB doesn't teach, what C teaches and why it would be obvious to combine C with AB.

Note that the "motivation" need not come from the reference itself.

Example (A)

- Applicant's claimed invention is directed to a device for information processing and retrieval. The device comprises 5 elements. Those elements are a dual core processor, a main memory, a first level cache (L1), a second level cache (L2) and a bus structure connecting everything.

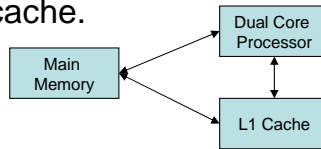


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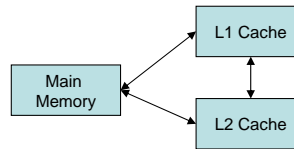
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Example (A)

- Reference A teaches a dual core processor, a main memory, an L1 cache and a bus connecting everything, which is all of the features of Applicant's claimed device except a second level cache.



- Reference B includes a second level cache and teaches that use of such enables fewer main memory calls to be required. As a result, system throughput is increased. Reference B is silent with respect to a processor.



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(A) The Teaching Suggestion Motivation Test (TSM) Example

The claim is rejected under 35 USC 103 as being unpatentable over reference A in view of reference B. Reference A teaches all of the claimed features except for having a second level cache. B teaches that by having a second level cache in a system, fewer main memory calls occur and therefore the system throughput is increased. It would have been obvious to one of ordinary skill in the art to modify the system of A by adding a second level cache to increase system throughput as taught by B.

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Reference A teaches all of the claimed features except ...:

Note that examiner is to map all the claim limitations to the pertinent sections of the prior art references.

These slides only attempt to help one understand the rationale that needs to be set forth in arriving at a conclusion of obviousness. They do not provide a full exposition of the rejection.

**(B) Combining prior art elements
according to known methods to yield
predictable results**

All of the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

(B) Combining prior art elements according to known methods to yield predictable results

The findings for this rationale are:

- 1) That prior art included each element claimed although not necessarily in a single reference;
- 2) That one of ordinary skill in the art could have combined the elements as claimed by known methods and that in combination, each element merely would have performed the same function as it did separately;
and
- 3) That one of ordinary skill in the art would have recognized that the results of the combination were predictable.

Example (B)

- Applicant's claimed invention is directed towards a wireless communications system that uses encryption and password authentication plus a power control system in a main office which varies the transmitted power based on the received signal level from a remote device.

Main Office has encryption, password use and variable transmission power based on received signal level



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Example (B)

- Reference A teaches all of the features of the claimed system including a main office that communicates with a remote device using encryption and password authentication except for a transmission power control unit used to increase the signal strength in accordance with a received signal strength.

Main Office has encryption and password use



- Reference B includes a repeater station in the garage which increases transmitted signal strength in accordance with the received signal strength such that the signal from the house can be received poolside.

Transmitter



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Repeater w
power cont



Receiver



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(B) Combining prior art elements according to known methods to yield predictable results

The claim is rejected under 35 USC 103 as being unpatentable over reference A in view of reference B. Reference A teaches all of the claimed features except for a transmission power control unit in the main office which increases the transmitted signal strength in accordance with a received signal strength. Reference B teaches a transmission power control unit in a repeater station which increases the transmitted signal strength in accordance with a received signal strength. All of the elements of the claims are known in references A and B. The only difference is the combination of the "old elements" into a single device i.e. the main office. It would have been obvious to one of ordinary skill in the art to place the power control system of B in the main office, since the operation of the transmission power control system is no way dependent on the operation of the other elements of the claims and the control could be used in combination with the main office system to achieve the predictable results of power controlled communications.

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**(C) Simple substitution of one known,
equivalent element for another to obtain
predictable results**

The claim would have been obvious because the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

(C) Simple substitution of one known element for another to obtain predictable results

The findings for this rationale are:

- 1) The prior art contained a device (or method) which differed from the claimed device by substitution of some components with others;
- 2) That the substituted components and their functions were known in the art; and
- 3) That one of ordinary skill in the art could have substituted one known element for another and the results of the substitution would have been predictable.

Example (C)

- Applicant's claimed invention is directed to a portable computer (notebook/laptop type) comprising a display, keyboard, a mouse, battery, cpu, and in which **SDRAM** is used to store BIOS information.



SDRAM
memory

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A mouse is not inherent in a laptop.



DRAM
memory

Example (C)

- Reference A teaches all of the claimed laptop features including display, keyboard, battery and cpu, but differing from the claimed invention solely in that it uses DRAM rather SDRAM to store the BIOS information.
- Reference B is an article about storing BIOS info in SDRAM that mentions it can be used in laptops but gives no laptop details.



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(C) Simple substitution of one known element for another to obtain predictable results

The claim is rejected under 35 USC 103 as being unpatentable over reference A in view of reference B. Reference A teaches all of the claimed laptop features except for the use of SDRAM to store BIOS information. A uses DRAM to store BIOS information. Reference B teaches, in a laptop system, the use of SDRAM to store BIOS information. Because both reference A and B teach the use of DRAMs in laptops, it would have been obvious to one skilled in the art to substitute one type of memory for another to achieve the predictable result of availability to the BIOS information on boot stored in the particular type of memory, in this case, SDRAM.

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Note that no motivation as to why to swap DRAMs is needed.

A word of caution. Combining prior art elements is not sufficient to render the claimed invention obvious if the results would not have been **predictable** to one of ordinary skill in the art.

(D) Use of a known technique to improve similar devices in the same way

The claim would have been obvious because the technique for improving a particular class of devices was part of the ordinary capabilities of a person of ordinary skill in the art, in view of the teaching of the technique for improvement in other situations.

(D) Use of a known technique to improve similar devices in the same way

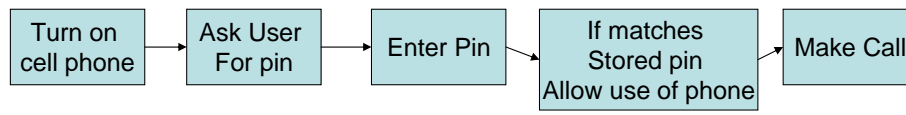
The findings for this rationale are:

- 1) The prior art contained a “base” device upon which the claimed invention is an improvement;
- 2) The prior art contained a comparable device that was improved in the same way as the claimed invention;
and
- 3) That one of ordinary skill could have applied the known “improvement” technique in the same way to the “base” device and the results would have been predictable.



Example (D)

- Applicant's invention is directed to a cell phone which includes required entry of a PIN at power up to ensure the person attempting to use the phone is an authorized user.



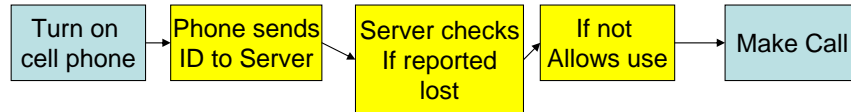
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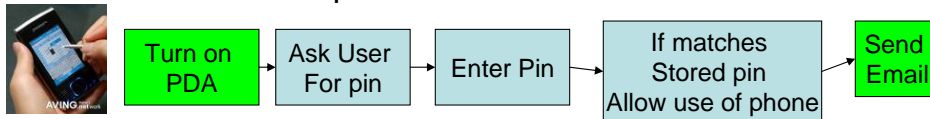


Example (D)

- Reference A teaches all of the phone features of the claimed cell phone and includes various security features, but it lacks the need to enter a pin at power up as one of the security features.



- Reference B is a PDA which requires a pin to be entered at power up. Reference B states that use of a such a PIN enables simple authentication of the user.



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PDA's and Cell phones are similar devices as they are both portable communications devices

(D) Use of a known technique to improve similar devices in the same way

The claim is rejected under 35 USC 103 as being unpatentable over reference A in view of reference B. Reference A teaches all of the claimed cell phone features including a number of security features but does not teach entering a pin at power up to make sure the user is an authorized user. PDA reference B teaches using a pin at power up is a simple authorization technique. It would have been obvious in the user device art, as taught by reference B, to use a pin at power up for verifying one's identity to enable use of the cell phone of reference A. Using the known technique of pin verification as taught by reference B to improve a similar user device to provide the desired level of security in the cell phone of reference A, would have been obvious to one of ordinary skill in the art, to improve the cell phone of reference A in the same manner as the PDA set forth in reference B.

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(E) Applying a known technique to a known device (method or product) ready for improvement to yield predictable results

The claim would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of one skilled in the art.

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Not necessarily in the same field of invention.

(E) Applying a known technique to a known device (method or product) ready for improvement to yield predictable results

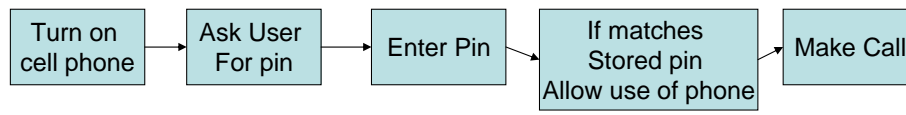
The findings for this rationale are:

- 1) The prior art contained a “base” device upon which the claimed invention is an improvement;
- 2) The prior art contained a known technique that is applicable to the base device;
- 3) That one of ordinary skill would have recognized that applying the known technique would have yielded predictable results.



Example (E)

- Applicant's invention is directed to a cell phone which includes required entry of a PIN at power up to ensure the person attempting to use the phone is an authorized user.



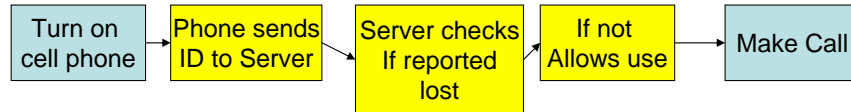
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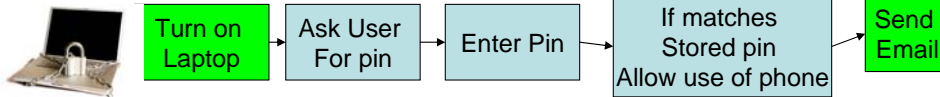


Example (E)

- Reference A teaches all of the phone features of the claimed cell phone and includes various security features (a base device that could be improved), but it lacks the need to enter a pin at power up as one of the security features.



- Reference B is a Laptop which teaches a known technique of a pin to be entered at power up. Reference B states that use of a such a PIN enables simple authentication of the user.



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Password authentication is a known technique

(E) Applying a known technique to a known device (method or product) ready for improvement to yield predictable results

The claim is rejected under 35 USC 103 as being unpatentable over reference A in view of reference B. Reference A teaches all of the claimed cell phone features including a number of security features but does not teach entering a pin at power up to make sure the user is an authorized user. **Laptop** reference B teaches using a pin at power up is a simple authorization technique. It would have been obvious in the cell phone art to use a pin at power up for verifying one's identity as taught by reference B. Using the known technique of pin verification to provide the predictable level of security in reference A would have been obvious to one of ordinary skill in the art, since one of ordinary skill in the art would recognize that reference A was ready for improvement to incorporate the security features, as taught by reference B.

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The fact pattern here is very similar to that of Example (D), above. As can be seen, multiple rationales may apply to the particular fact pattern of a given scenario. Therefore, the examiner should choose the rationale for which there is the greatest explicit support in the references rather than relying on implicit information, whenever practicable. A well-reasoned rejection with factual support is more important than which particular rationale is selected.

(F) “Obvious to try”-choosing from a finite number of identified, predictable potential solutions, with a reasonable expectation of success

The claim would have been obvious because “a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of invention but of ordinary skill and common sense.”

(F) “Obvious to try”-choosing from a finite number of identified, predictable potential solutions, with a reasonable expectation of success

The 3 findings for this rational are:

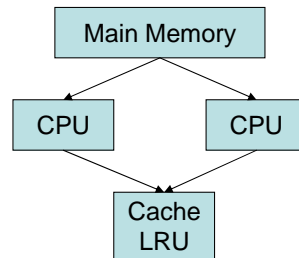
- 1) That there has been a recognized problem or need in the art including a design need or market pressure to solve a problem;
- 2) That there has been a finite number of identified predictable potential solutions;
- 3) That one of ordinary skill in the art could have pursued the known potential options with a reasonable expectation of success.

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Example (F)

- Applicant's claimed invention is directed to a device for information processing and retrieval utilizing a "least recently used" (LRU) algorithm to replace information in cache after it fills up.

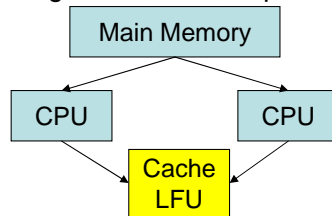


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Example (F)

- Reference A teaches all of the structural elements of Applicant's claimed device and recognizes that cache quickly fills up, but lacks use of the particular algorithm, LRU, required by the claimed invention.



- Reference B is a college textbook on cache design and implementation which sets forth a number of different replacement algorithms which can be used to address the problem of caches filling up, one of which is the claimed LRU.

Table of Contents
1 LRU
2 LFU
3 MRU

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(F) “Obvious to try”-choosing from a finite number of identified, predictable potential solutions, with a reasonable expectation of success

The claim is rejected under 35 USC 103 as being unpatentable over reference A in view of Reference B. Reference A teaches all of the claimed features except for “the least recently used” (LRU) cache replacement algorithm. The replacement algorithm is needed as caches quickly fill up. Reference B, a college text book on caches teaches a number of replacement algorithms one of which is the LRU algorithm. In practicality there are only a finite number of replacement strategies. It would have been obvious to one of ordinary skill in the art to try the LRU replacement algorithm of B in the system of A in an attempt to provide a better cache hit rate, as a person with ordinary skill has a good reason to pursue the known replacement algorithms within his or her technical grasp. In turn, because the LRU replacement algorithm when used in the system of A has the predicted properties of the replacement strategy, it would have been obvious.

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(G) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art.

The Claim would have been obvious because the design incentives or market forces provided a reason to make an adaptation, and the invention resulted from application of the prior knowledge in a predictable manner

(G) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art.

The 4 findings for this rational are:

- 1) That the scope and content of the prior art, whether in the same or different field of endeavor, included a similar or analogous device;
- 2) That there were design incentives or market forces which would have prompted adaptation of the known device;
- 3) That the differences between the claimed invention and the prior art were encompassed in known variations or in a principle known in the prior art; and
- 4) That one of ordinary skill in the art, in view of the design incentives or market forces, could have implemented the claimed variation of the prior art, and the claimed variation would have been predictable.

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Example (G)

- Applicant's invention is directed to a cell phone which includes required entry of an 8 character password at power up to ensure the person attempting to use the phone is an authorized user.



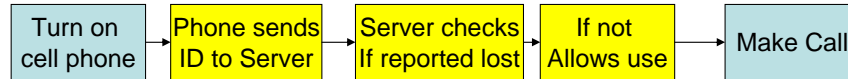
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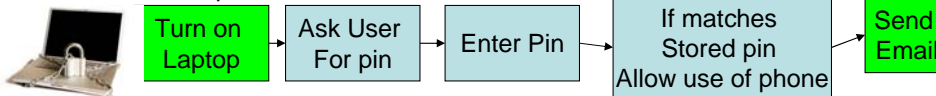


Example (G)

- Reference A teaches all of the phone features of the claimed cell phone and includes various security features, but it lacks the need to enter an **8 character password** at power up as one of the security features.



- Reference B is a laptop which requires a **4 digit pin** to be entered as a password at power up. Reference B states that use of a such a PIN enables simple authentication of the user.



- It was notoriously old and well-known in the art of access control at the time of the invention that passwords more complex than a 4 digit pin became necessary to combat the more powerful and sophisticated tools used by hackers to obtain unauthorized access to various personal devices. Use of at least 8 digits and at least 2 of alphanumeric, special character and capitalization were commonplace requirements prior to the time of the invention.

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PIN- A numeric password

Password- A numeric or alphabetical secret used to access a system

(G) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art.

The claim is rejected under 35 USC 103 as being unpatentable over reference A in view of reference B. Reference A teaches all of the claimed cell phone features including a number of security features but does not teach entering an 8 digit password at power up to make sure the user is an authorized user. **Laptop** reference B teaches using a password at power up is a simple authorization technique but only mentions a 4 digit pin. Since the marketplace reflects the reality that security continuously needs to be upgraded as hacking tools become more powerful, and it was well known in the art that longer passwords provide greater security than shorter pins, it would have been obvious in the cell phone art to use an 8 digit password at power up for verifying one's identity. Using the known technique of pin verification as taught by reference B, to provide the predictable level of security in reference A and to update the 4 digit pin to an 8 digit password in order to gain the commonly understood benefits of such an adaptation, such as increased security, would have been obvious to one of ordinary skill in the art.

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Evidence should be made of record to support the factual findings, such as those regarding market forces. If it is notoriously well known, Official Notice may be taken of that fact.

Other Obviousness Topics

- Single reference 103 rejections
- Double patenting rejections
- Rejections of claims using additional references
- Grouping of claims

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Remember that the Graham factors need to be clearly articulated in every 103 obvious double patenting rejection

Remember to proof read your rejections after writing them to verify that the claims recited in the statement of rejection matches the claims discussed in the body of the rejection, that the references cited to reject the dependent claims include all of the references applied to reject any claims from which they depend, and that your overall action is clear and concise.

Critical Issues to Remember

- **EVERY** rejection under 35 USC 103 must convey:
 - The Graham v Deere Factors
- An examiner may establish a prima facie case of obviousness, thereby shifting the burden to Applicant to provide factual evidence in rebuttal, by providing facts and reasoning in accordance with Examination Guidelines for Determining Obviousness, for example by applying one or more of the rationales identified therein
- Merely including conclusory statements in an Office action is insufficient to establish a *prima facie* case of obviousness and therefore insufficient to shift the burden to Applicant

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Note that the level of ordinary skill need not always be explicitly stated in the rejection, but may be implicit in the record as a whole.

The Examination Guidelines are reprinted in MPEP 2141.

Board of Appeals Decisions discussing KSR Rationales

09/726,976 Decided 07/31/07 Rationale D
10/280788 Decided 07/25/07 Rationale C
09/996125 Decided 07/27/07 Rationales E, F and G

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Questions?

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