

# Pattern Techniques:

## Removing instances from a pattern



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## Objective:

At the end of this tutorial, you will be able to:

- Explain how to remove individual instances from a pattern.
- List what a group pattern does differently than a regular pattern.
- Describe what an “unpattern” is.

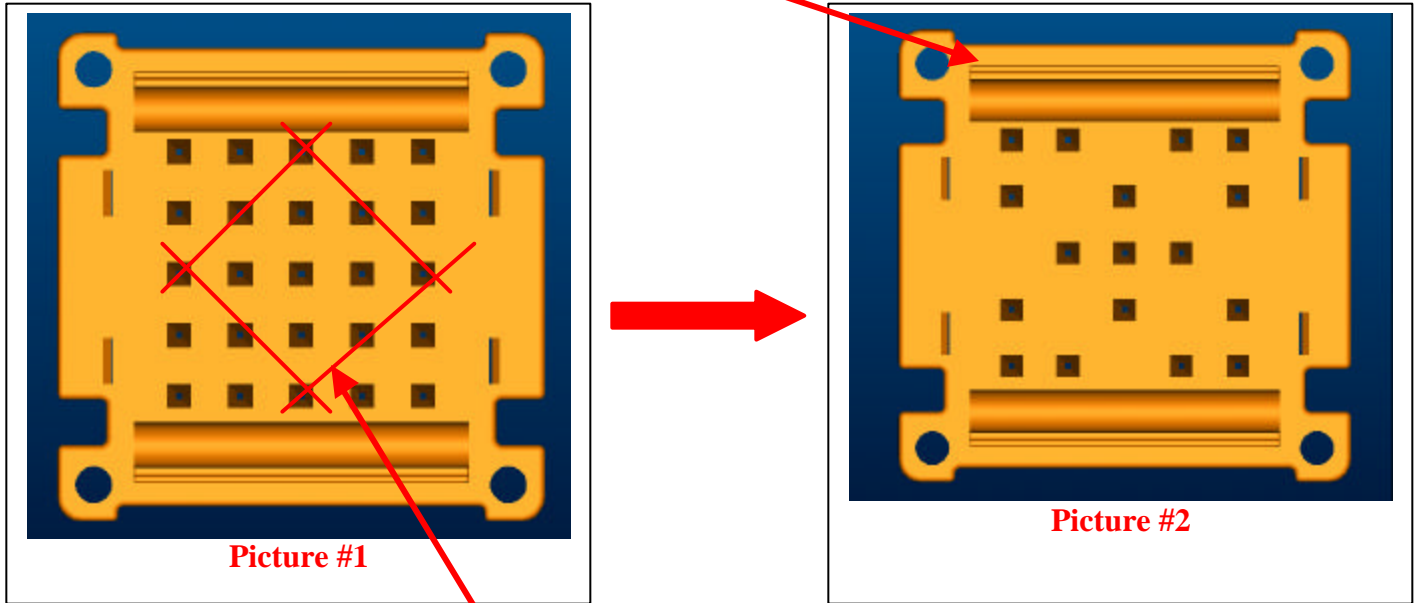
## Overview:

Patterning a feature on a model can be a powerful way to leverage the parametric nature of Pro/E. There are times though when you need to break the “links” and customize the pattern for specific shapes. This tutorial will show you how to remove selected instances of a pattern yet still be able to move the entire grid with X, Y locations.

One caveat of this technique is that further ability to update the number of instances is lost because they will be “un-patterned”. I’m sure you’ll agree that the speed at which you can recreate this pattern will negate any of the negatives and it will become a useful addition to your bag of tricks.

### Tutorial:

We have plastic carrier used for computer chips and we would like to create an array of hole shapes that is based on a pattern but has certain instances removed. You can see the final shape we are trying to achieve by removing the instances from Picture #1 and achieving Picture #2.



We're going to remove these instances from our pattern.

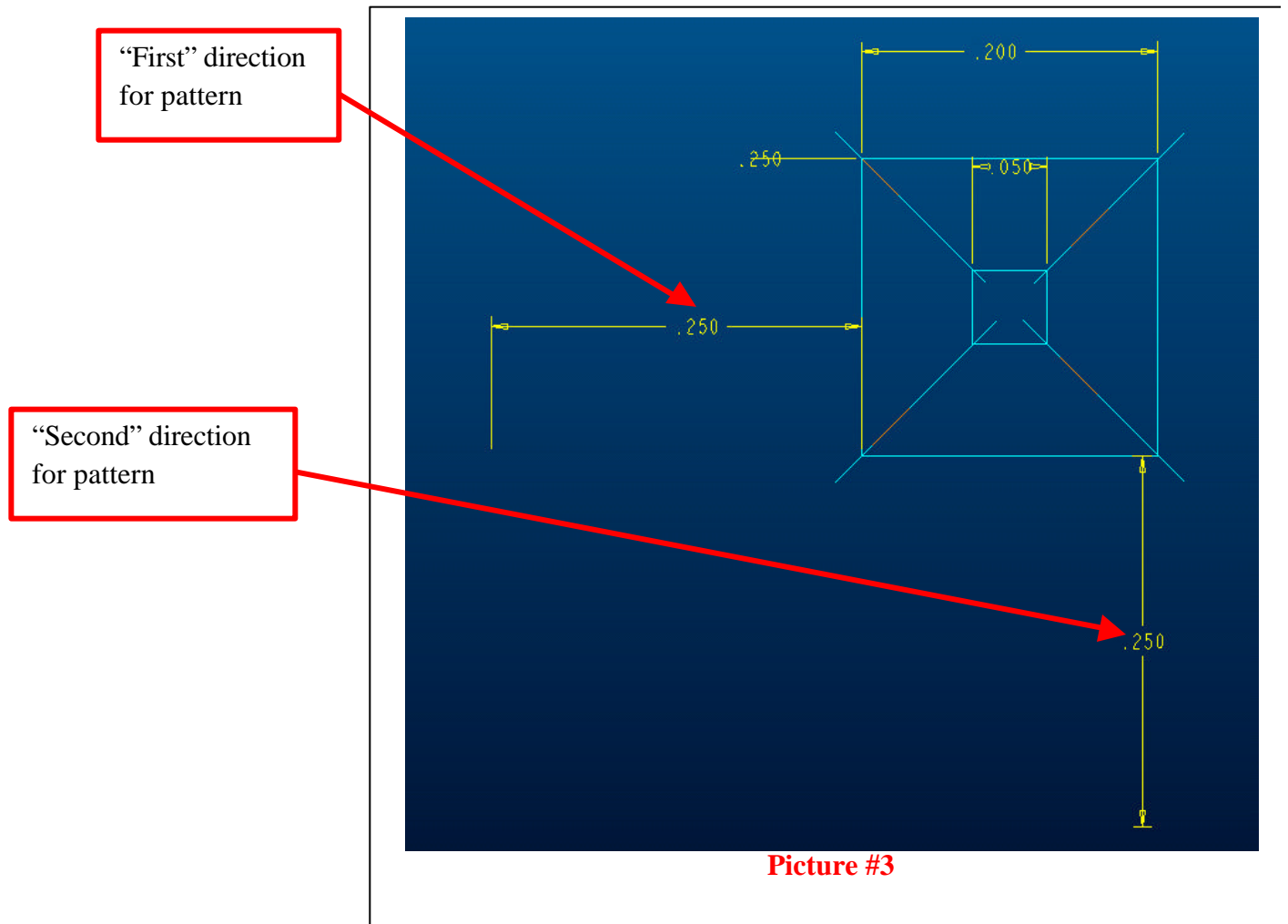
Step 1: Create the feature(s) that you want to make the pattern of.

Step 2: Group the feature(s).

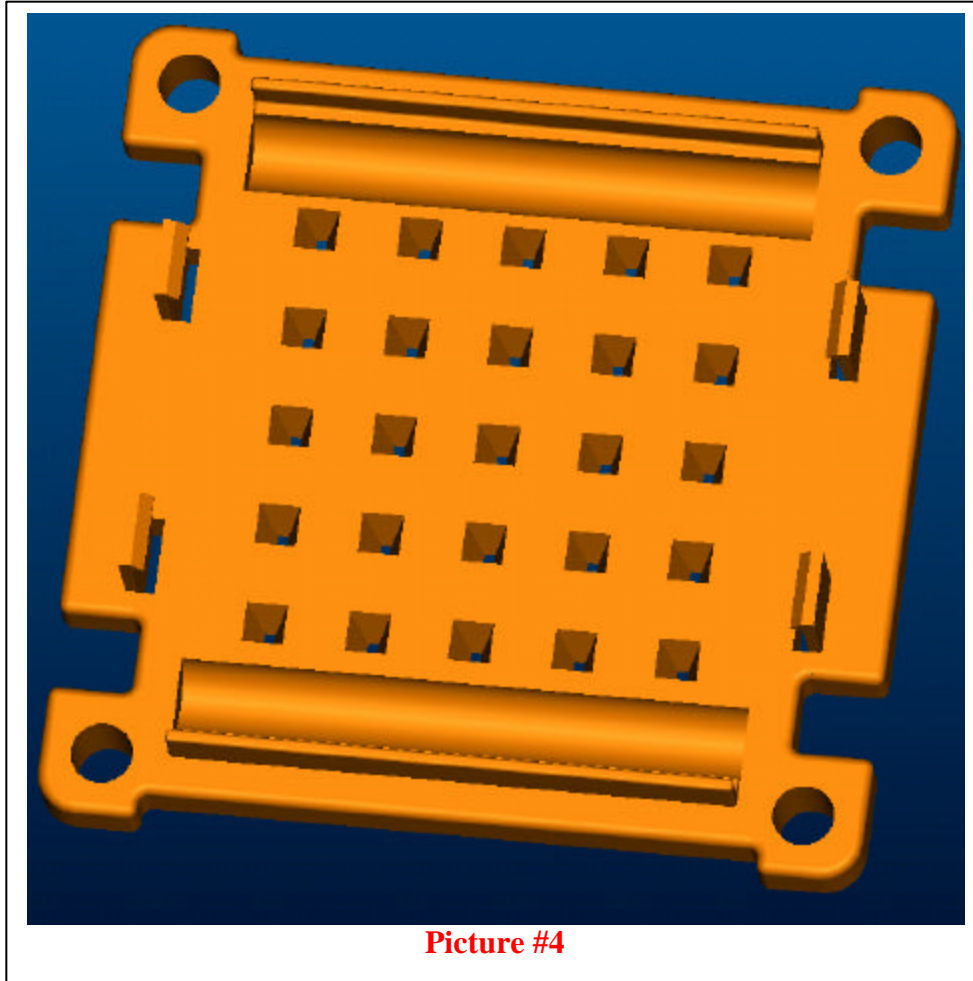
- a) Menu Picks: FEATURE, GROUP, LOCAL GROUP
- b) Type in a descriptive name for this group, and then “Done” out to complete.

Step 3: Pattern the group you just created.

- a) Menu Picks: FEATURE, GROUP, PATTERN
- b) Select the group you just created.
- c) Select the first pattern direction, enter increment, DONE, and enter total number in this direction, DONE.
- d) Select the second pattern direction, enter increment, DONE, and enter total number in this direction, DONE.



Now, you should have a standard linear pattern that looks like Picture #4:



Step 4: Remove the “pattern” from the pattern you just created.

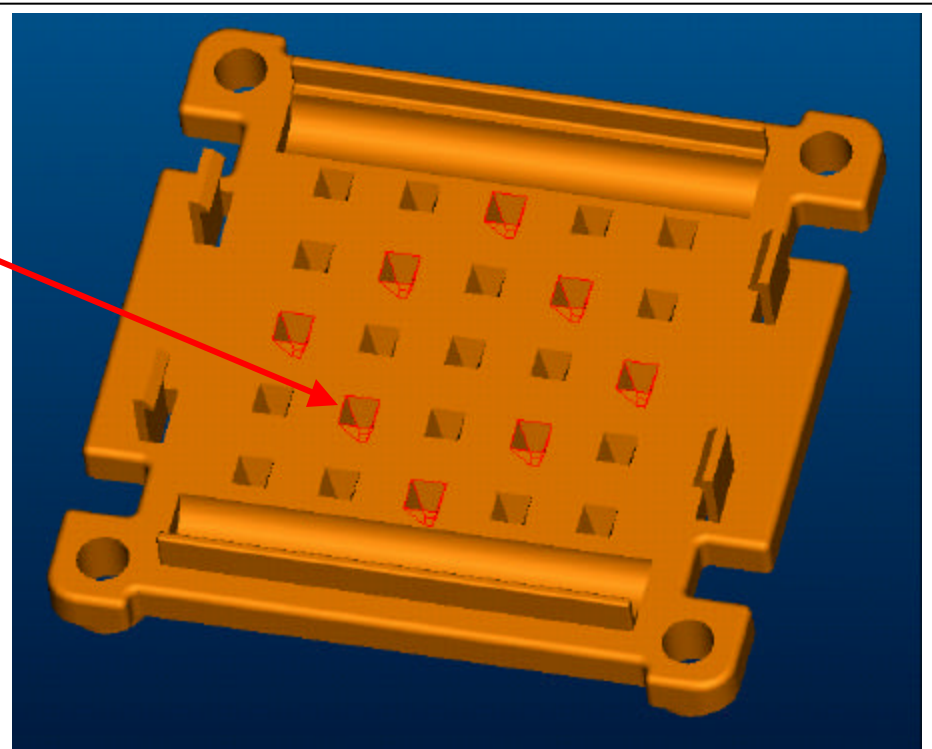
- a) Menu Picks: FEATURE, GROUP, UNPATTERN, select any instance in the existing pattern.
- b) “Done” out to finish that command.

Now if you look at your model tree, you’ll see that you no longer have one feature for the entire array but rather each instance has been broken out and can be manipulated independently of the others. This could be a simple location change or you can even delete any instance you choose.

Step 5: Remove the instances that you don't want.

- a) Menu Picks: FEATURE, DELETE, and select any of the individual instances that you want to remove from the pattern.
- b) "Done" out to finish that command.

Pick any instances  
you want to delete.



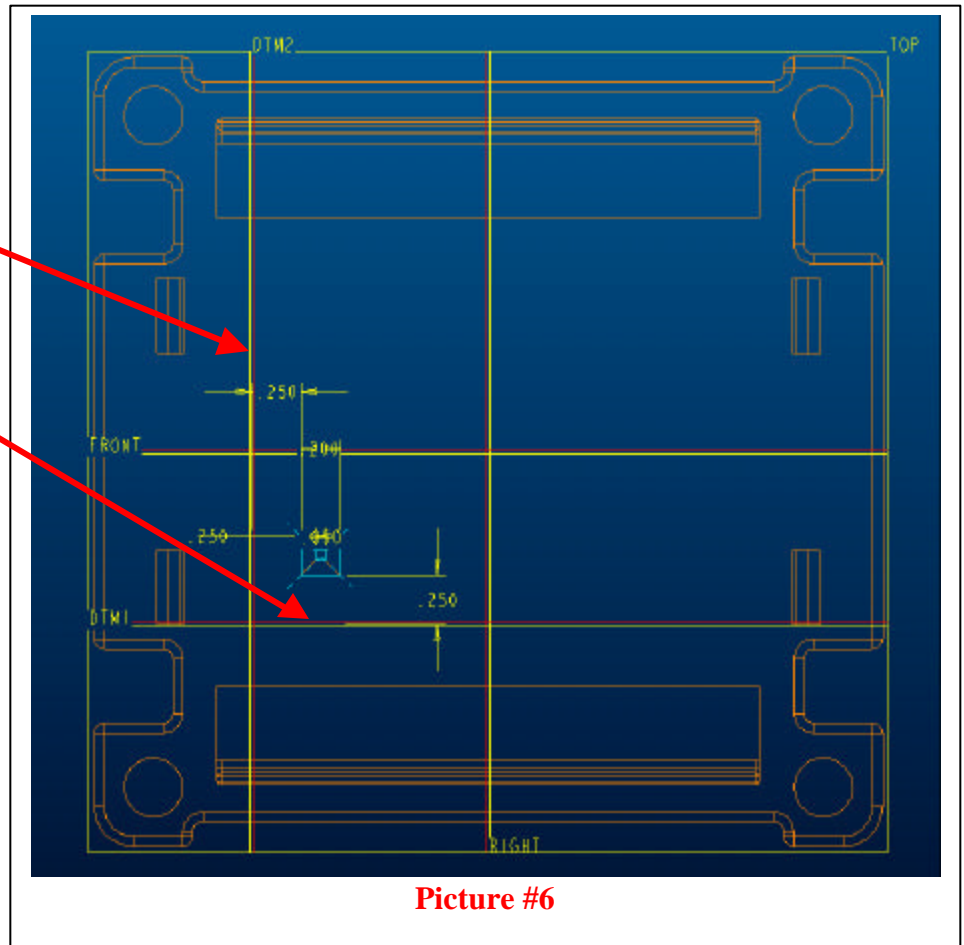
Picture #5

Step 6: Optional (adding more control over the array).

You can add a little more flexibility to this “irregular” pattern if you dimension the lead member of the pattern to created datum planes (Picture #6). Since all of the patterned instances keep their original X, Y reference, you can simply modify the dimension of a datum plane and cause the entire array to shift laterally.

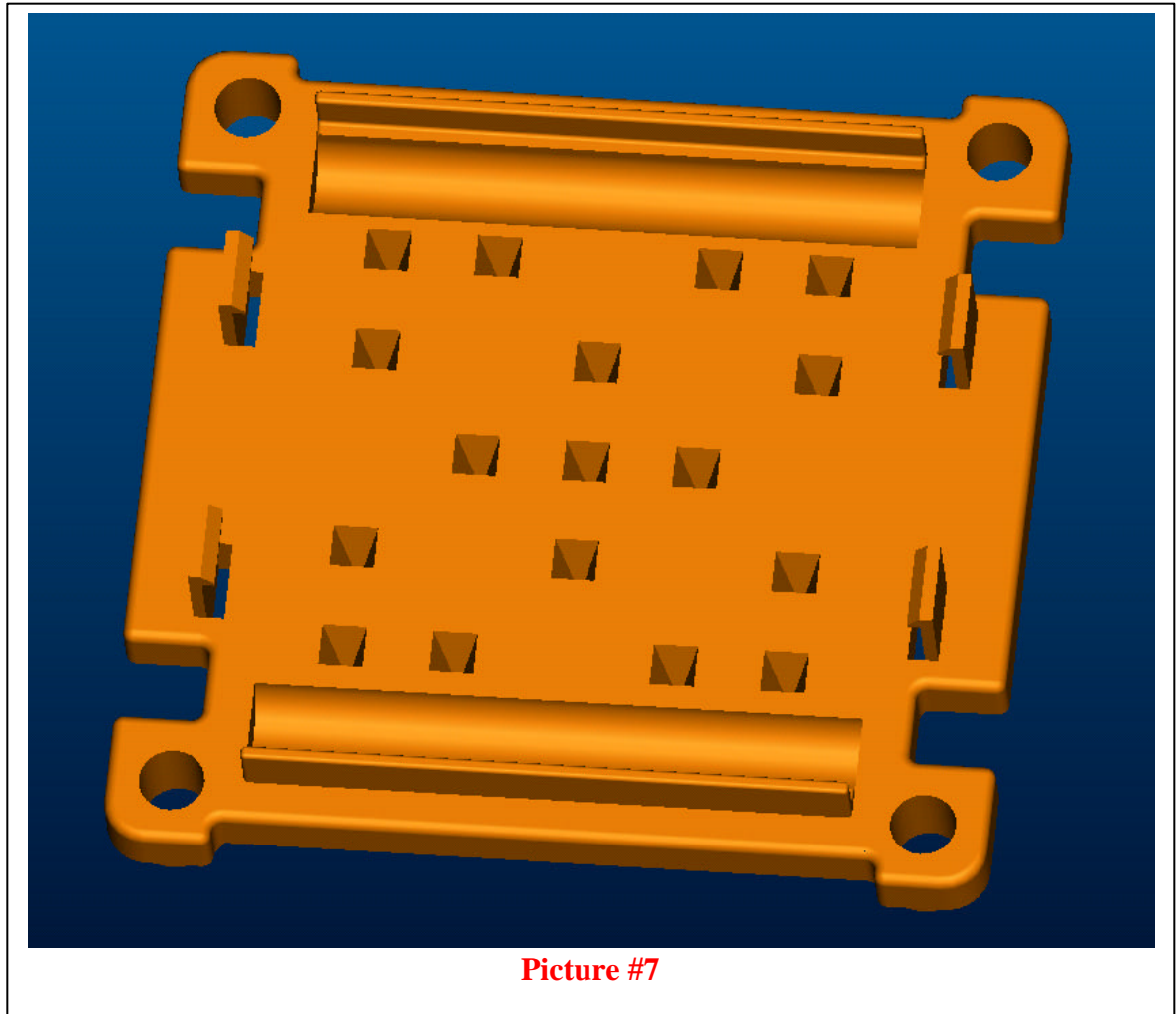
If you’d like to do this, keep in mind that you need to create the datum planes first, then reference them while you create the lead feature, then perform Steps 1-5. This is because each instance gets its X, Y reference from the lead member before the “unpattern” takes place and they keep them after.

Created datum planes give you more flexibility in moving the entire group together.



Finished!

Now you have an array of regularly spaced features with an irregular pattern!



### Quick Summary of Steps

- 1) Create your feature
- 2) Group the feature
- 3) Pattern the group
- 4) Un-pattern the group
- 5) Delete the instances that you don't want.

## Key Vocabulary for Patterns:

**First Direction:** When creating a pattern, Pro/E needs to know what direction to replicate the features. It gets this direction from a dimension used to create the feature. It's easy to think of this as the "X" direction.


For linear patterns, this direction is typically a horizontal dimension to one side of the part. For radial patterns, this dimension is typically an angle dimension from some reference plane.

**Group:** Pro/E allows you to collect several features together so that actions can be performed on all of them at once, this is called a group. With patterns, groups are treated a little different than a single feature pattern in that you can "un-pattern" the pattern and treat each instance separately.

**Pattern:** A regularly repeating series of features. Patterns are useful because they can quickly create lots of repeated features and allow them to all be controlled parametrically by the lead feature. In Pro/E, a pattern can be linear, radial, or even follow an irregular curve shape.

**Second Direction:** This input is optional and is only needed if you want more than one "row" of patterned instances. You can think of the second direction as the "Y" direction.

**Unpattern:** Command used with groups that allows you to treat each instance of a pattern as a separate entity. You can then delete or modify the location of each instance independently of the rest.

Title: Pattern Techniques (Removing instances from a pattern)	
Date: 8/9/02	
Version: Pro/Engineer 2001	

## Tutorial Evaluation:

<b>Title:</b>	<input type="checkbox"/> Engineer <input type="checkbox"/> Designer <input type="checkbox"/> Draftsmen <input type="checkbox"/> Mfg. Engr. <input type="checkbox"/> Tech. Pubs. <input type="checkbox"/> Analyst					
<b>PTC Products Used:</b>	<input type="checkbox"/> Foundation <input type="checkbox"/> Advanced Assembly Extension <input type="checkbox"/> Advanced Surface Extension <input type="checkbox"/> Behavioral Modeling <input type="checkbox"/> Intralink <input type="checkbox"/> Modelcheck <input type="checkbox"/> All					
<b>Time using Pro/E:</b>	<input type="checkbox"/> 0-6 months <input type="checkbox"/> 6-12 months <input type="checkbox"/> 1-2 years <input type="checkbox"/> 2-5 years <input type="checkbox"/> 5+ years					
<b>1 – Strongly Disagree</b> <b>3 – Agree</b> <b>5 – Strongly Agree</b>						
1. This tutorial content met my expectations:	.....	1	2	3	4	5
2. The exercise was easy to understand:	.....	1	2	3	4	5
3. This tutorial will help me on current projects:	.....	1	2	3	4	5
4. These techniques make Pro/E a more effective tool:	.....	1	2	3	4	5
5. These techniques will increase my speed using Pro/E:	.....	1	2	3	4	5
What concepts/techniques learned from this tutorial will you apply on the job?						
1)						
2)						
3)						
What would you like to see as a future tutorial at your company?						
1)						
2)						
3)						
What can be done to improve these tutorials for your company?						
1)						
2)						
3)						

Additional Comments: