

4. In the bottom row, find the most negative number. The corresponding column is called the **pivot column**. In our case there are two such columns, so we get to pick the one we'll use; we'll pick the x column.

5. Now divide each of the other entries in this column into the corresponding constant at the far right. Use the space below to record your calculations. The entry that gives you the smallest ratio is called the **pivot element**. Circle it in the tableau. We will essentially do Gauss-Jordan elimination using this entry as our pivot.

6. First, we need to make the pivot element into 1. So divide the whole row by the pivot element. Rewrite the tableau, not changing the other rows. Circle the pivot element.

x	y	z	u	v	w	P	Constant

7. Now we use Gauss-Jordan to make the rest of the entries in this column zeros. Rewrite the tableau. Be sure to record your row operations.

x	y	z	u	v	w	P	Constant

8. This completes one iteration of the process. We then check the bottom row as we did in step 4. If there are no negative numbers, we are done and we pick out our solution. This is not the case, so we go on.

9. Find the most negative number in the bottom row. The corresponding column is again called the **pivot column**. Now divide each of the other entries in this column into the corresponding constant at the far right. Use the space below to record your calculations. The entry that gives you the smallest ratio is again called the **pivot element**. Circle it in the tableau.

10. First, we need to make the pivot element into 1. So divide the whole row by the pivot element. Rewrite the tableau, not changing the other rows. Circle the pivot element.

x	y	z	u	v	w	P	Constant

11. Now we use Gauss-Jordan to make the rest of the entries in this column zeros. Rewrite the tableau. Be sure to record your row operations.

x	y	z	u	v	w	P	Constant

12. We again search for the most negative number in the bottom row. Notice this time there are no negative numbers. This indicates we are done. We can now pick out our solution. Recall we want values for x, y, and z (that maximize the objective function).

13. All the columns that are not composed entirely of zeros and ones correspond to **nonbasic variables**. In our case the nonbasic variables are z, u, and v. All the columns that are composed entirely of zeros and ones correspond to **basic variables**. In our case, the basic variables are x, y, w, and P.

14. Write down the equations that correspond to the rows.

15. Assign the nonbasic variables (z , u , and v) the value of zero. Rewrite your equations with these variables gone. This allows us to solve for the basic variables.

16. This gives us $x = 5$, $y = 4$, $z = 0$, and $P = 18$. This tells us the ordered triplet $(5, 4, 0)$ is the point that maximizes the objective function P . The maximum value of P is 18.

17. Notice that $w = 15$. This gives us additional information about the constraint that involved w . It would have meaning if the problem had a context. The interpretation of values for the slack variables is discussed in example 4 in the textbook at the bottom of page 225.