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Algebra in Industrial Engineering

Algebra is a branch of Mathematics which people cannot live without. It is the study of equations with variables and numbers and it can be found in mostly every job that you can find. It can be found in jobs with the Medical field, it can be found in jobs with the Business and Marketing field, and it can even be found in jobs with the Culinary field. Algebra is mostly used at all jobs, but the job that use Algebra the most is Industrial Engineer.

An Industrial Engineer is a person that deal with the design, improvement, and installation of industrial systems, or in words, find ways to eliminate wastefulness in a production process. They do this through by first collecting the data or finding the data they need. Then, they use many different formulas to find the best number for their situations. The formulas they create come from what they learned in College Algebra, Geometry, Trigonometry, Calculus I, Calculus 2, Linear Algebra, Differential Equations, and Statistics.

There is one topic used in Industrial Engineering that relates to College Algebra. The topic is how Industrial Engineers turn real world situations into algebraic equations. How Industrial Engineers turn real world situations into algebraic equations is simple. First, an Industrial Engineer must find or be given a real-world situation to evaluate. An example of this would be: In the last four years, there has been a low production of chocolate in the Hershey Chocolate Bar factory. This because the equipment that stir the chocolate is past its prime. While with other factories, it only takes 30 minutes to create 48 cases of chocolate bars from 1440 cacao beans, with the Hershey Chocolate Bar factory it takes 30 minutes to create 24 cases of chocolate bars from 1440 cacao beans.

  The solution to this problem is clear; the Hershey Kisses factory needs to get a new stirring machine, but what stirring machine should they get? There so many different types of machine and each one takes in different amount of cacao beans to create chocolate bars. To find the best one, an Industrial Engineer would ask to two questions at this point: One, which machine is the cheapest? And two, which machine produces the most chocolate bars with the least time and without using the most cacao beans? For this situation, an Industrial Engineer already founded two machines that have the cheapest cost, but both of machines do not say how much time it takes to make a case of chocolate bar. To figure out which machine is the best, the formula C= (B/R)/T used to find how many cases of chocolate bar each machine can make. C= represent how many cases of chocolate bar have been created, B= how many cacao beans have used, R= equal the resistance number on the machine, and T= how time it takes, in minutes, for stirring. By finding the numbers on the machines, which is on the first machine, the number of cacao beans used for a single case of chocolate is 30 cacao bean and the resistance is 1 and on the second machine, the number of cacao beans used for a single case of chocolate is 60 cacao beans and the resistance is 2, people can do the math and see that machine 1 is the best option to choose from since, even though both machine have the same stirring time, machine 1 uses the least resources.  In short, this how Industrial Engineers turn real world situations into algebraic expressions.

In summary, Algebra is the study of equations with variables and numbers. It can be found in nearly all jobs and Industrial Engineers use it the most. The topic that related Industrial Engineer is how to turn real world situations into algebraic expressions. Without this topic, Industrial Engineers would have many problems in creating or fixing industrial systems.