

Marvelous Meaningful Monthly Math

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Central Area Tech Prep, Mitchell Technical Institute, and Bridges

Manufacturing December

Career – Wood Industry Process Control Analyst

Math Activity

You're the process control analyst for a small on-site mill. Over the past few years, the mill has had many different managers, and the production process hasn't been effective or efficient.

Last year, new managers stepped in and became determined to help this small sawmill generate a handsome profit. They turned to you for advice about what kinds of machines would help improve production. They also asked for your help in installing and setting up the computer programs for the machines.

You were excited by the opportunity to help the mill. You always thought it had the capability to turn a profit, if only the machines were updated.

You devised a 2-year plan for installing new equipment.

Last year you installed a 16-foot trimmer scanning optimizer and a 10-saw optimizing trimmer, complete with a 3-stage positioning infeed and smart-gate outfeed.

This spring more equipment arrived at the mill, including log-sorting bins, step feeders and a high-speed, 4-head, small-log sawing line.

You are thrilled with the small-log sawing line because it will greatly increase productivity. The machine will process logs from 3 inches to 9 inches in diameter and 7 feet to 16 feet in length.

The old machine rejected any log that was under 4.5 inches in diameter.

The mill produced 625 million board feet of lumber last year. This year, with the new machine, you predict that the mill will produce 750 million board feet. Even though the output is greater, the amount of raw material going into the mill will be the same.

1. By being able to salvage the 3- to 4.5-inch logs, how many more board feet will the mill be able to produce this year?
2. What percentage of increase is this in productivity?

Name _____ School _____ Teacher _____

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Solution

You have been asked by management to recommend some machines to increase the productivity of the plant. You have chosen several machines, but are most excited by the small-log sawing line.

The mill will be able to generate more lumber from the same amount of logs:

625 million board feet produced last year

750 million board feet produced this year

750 - 625 million = 125 million more board feet will be produced.

Divide the growth by last year's figure:

$125 / 625 \times 100 = 20$

The mill will see a 20 percent increase in the amount of wood products produced thanks to the new small-log sawing line.

This is what wood industry process control analysts do. "I spend 95 percent of my time programming," says David Nordvie. He devises new and better ways for the computers to operate. His work with the machines increases productivity and, ultimately, profit for the company.