



Math Problems

Read the following facts about coal mining and the coal industry. Choose one and develop a math problem. Write a paragraph to describe the situation. Give the step-by-step procedures for solving the problem. Make sure that the steps are in the correct sequential order. Follow each step to solve the problem. Show all of your work. Create an illustration to demonstrate the problem and your solution: a chart, table, graph, timeline, drawing, or other type of graphic. Prepare an oral presentation to introduce the situation, solve it, and explain your answer. Present your problem to the class and be prepared to answer questions from your classmates.

Choose from among the following details:

- a typical coal barge, completely loaded, carried 1,500 tons of coal;
- in the coking process, 17 tons of coal equals 13 tons of coke and 4 tons of waste material; the waste is mostly hot coal tar;
- 27,000 tons of coal was transported each day to the Clairton Works; the transportation required 25 river barges or 385 rail hoppers or 1,000 trucks; the coal was delivered 24 hours a day for 7 days a week;
- at the height of the steelmaking industry, the Hazelwood coke battery produced coke each day; the process involved:
 - 4 oven batteries with a combined total of 365 ovens;
 - each oven was 2 stories tall and 18 inches wide;
 - 17 tons of coal was poured through a hole in the roof of each oven;
 - the coal was heated to 1,700 degrees Fahrenheit in each sealed oven;
 - the 17 tons of coal produced 13 tons of coke;
- the Pittsburgh Coal Seam is located across the states of Ohio, Pennsylvania, Maryland, and West Virginia; a comparison of the value of coal production of the Pittsburgh Coal Seam with the value of gold and silver production in the United States in 1904 is:

- United States gold production	- \$84,551,300
- United States silver production	- \$53,603,000
- Pittsburgh Coal Seam production	- \$550,000,000



- to make one ton of steel, you need:
 - 2,500 lbs. iron ore
 - 1,400 lbs. coal
 - 120 lbs. limestone
- in the early days of coal mining, miners used a pick machine to undercut the coal; an operator advanced the machine as it cut deeper into the coal face; the pick machine struck between 190-210 blows per minute; a mining helper shoveled the debris away with a special-handled shovel.