Skateboard Assembly Cycle Time – High School
Student Worksheet

Name: ___________________________ Date: ___________

Table 1: Base Case versus Methods Improvement

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<th>Station #</th>
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<td><strong>Percent Change</strong> (nearest 100th of a %)</td>
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Percent Change Formula =

1) Determine a method for computing the overall percent change of the assembly line.

________________________________________________________________________________

2) Compute the Overall Percent Change after for Methods Improvement: ____________________________

Table 2: Base Case versus Adding Labor

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3) Compute the Overall Percent Change for Adding Labor: ________________________________
4) What are the benefits of reducing Cycle Time?

_________________________________________________________________________

5) When can a reduction in Cycle Time NOT improve revenue for the manufacturer?

_________________________________________________________________________

Cost Analysis

6) What are some costs of running a skateboard manufacturing company?

_________________________________________________________________________

_________________________________________________________________________

7) If the Total Manufacturing Cost (C) for the company equals the cost of each employee’s Hours (h) at Minimum Wage ($7.25/hour) plus the Fixed Manufacturing Costs (FC) of the facility, write a linear equation for Total Manufacturing Cost (C) in terms of h and FC.

_________________________________________________________________________

8) What is the relationship between Hours worked (h) and Total Manufacturing Costs (C)?

_________________________________________________________________________
9) Assume the Fixed Manufacturing Costs (FC) for a small skateboard company are $4,500 per month and the company’s budget for the Total Manufacturing Cost (C) per month is $17,000.

a) What is the maximum number of hours (per month) that can be worked by their employees, who earn $7.25/hr? Round your answer to the nearest whole hour. ________________

b) If each employee workers 40 hours/week, or 160 hours/month, what is the maximum number of employees that can be hired? ________________

c) The company would like to give every employee a 10% raise from $7.25/hr. Would this translate to a 10% increase in the Total Manufacturing Cost per month? ________________
Justify your answer.

d) The company has reevaluated its Fixed Manufacturing Costs and realized they only spend $4,000 per month. They would like to increase the rate of pay for their employees to $7.75/hr.

Would the Total Manufacturing Cost for the month be more or less? ________________
Justify your answer.

For how many hours worked for the month would the Total Manufacturing Cost be the same? ___
Answer may be determined graphically or algebraically.