Mat 011 Agenda  Day 6: 2/4/02

- Attendance
- Share a Problem
- PowerPoint Lecture 5, S31
- PowerPoint Lecture 6, S43

Solving Equations:
Lawn Mowing, S43
Choice of jobs, S44
Weight related to height, S45

Homework: Topics 7, 8 pages S41, S49
Two girls want to enter the lawn-mowing business for the summer. They plan to buy a lawn mower for $180 and they hope to charge $8 an hour.
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<table>
<thead>
<tr>
<th>Hours</th>
<th>Calculations</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>8(20) - 180</td>
<td>-20</td>
</tr>
<tr>
<td>160 - 180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>8(40) - 180</td>
<td>$140</td>
</tr>
</tbody>
</table>
| Let \( h \) = \# hours
| \( P = 8h - 180 \) |          |
Two girls want to enter the lawn-mowing business for the summer. They plan to buy a lawn mower for $180 and they hope to charge $8 an hour.

How many hours will they have to work to breakeven?

$$\text{Profit} = 0$$

$$P = 8h - 180$$

$$0 = 8h - 180$$

$$180 = 8h$$

$$h = \frac{180}{8}$$

$$h = 22.5\text{ hours}$$
Two girls want to enter the lawn-mowing business for the summer. They plan to buy a lawn mower for $180 and they hope to charge $8 an hour.

How many hours will they have to work to make $780 for the summer?

\[ P = 8h - 180 \]

\[ 780 = 8h - 180 \]

\[ 180 \quad +180 \]

\[ 960 = 8h \]

\[ \frac{960}{8} = h \]

\[ 120 \text{ hours} = h \]
You are offered two very similar jobs selling math textbooks. One (Company A) pays 8% commission plus $10,000 a year and the other (Company B) pays 12% commission.

Let \( S = \text{amt in sales} \)

\[ W_A = 0.08S + 10,000 \]

\[ W_B = 0.12S \]
\[\text{WA} = \text{WB}\]

\[\text{WB} = \frac{200,000}{0.08} = 2,500,000\]

\[0.08S + 10,000 = 0.12S\]

\[-0.08S\]

\[-0.08S\]

\[10,000 = 0.04S\]

\[\frac{10,000}{0.04} = S\]
You are offered two very similar jobs selling math textbooks. One (Company A) pays 8% commission plus $10,000 a year and the other (Company B) pays 12% commission.

What is the equation that relates wages and sales for companies A and B?
You are offered two very similar jobs selling math textbooks. One (Company A) pays 8% commission plus $10,000 a year and the other (Company B) pays 12% commission.

How much would you have to sell for the two companies to pay you the same amount of money for the year?
Women’s recommended weight formula: “Give yourself 100 lbs plus 5 lbs for every inch over 5 ft tall.” (Remember 5 ft = 60 inches!)

Let \( h = \text{height} \)

<table>
<thead>
<tr>
<th>Height</th>
<th>Calculations</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>61 inches</td>
<td>( 5(41 - 60) + 100 )</td>
<td>105</td>
</tr>
<tr>
<td>65 inches</td>
<td>( 5(65 - 60) + 100 )</td>
<td>125</td>
</tr>
<tr>
<td>72 inches</td>
<td>( 5(72 - 60) + 100 )</td>
<td>160</td>
</tr>
<tr>
<td>( h ) inches</td>
<td>( 5(h - 60) + 100 )</td>
<td></td>
</tr>
</tbody>
</table>
\[ W = 5(h - 60) + 100 \]
\[ W = 5h - 300 + 100 \]
\[ W = 5h - 200 \quad h \geq 60 \]
Women's recommended weight formula: "Give yourself 100 lbs plus 5 lbs for every inch over 5 ft tall." (Remember $5 \text{ ft} = 60 \text{ inches}!)

What is the equation that relates weight and height? Simplify the equation.
Women's recommended weight formula: “Give yourself 100 lbs plus 5 lbs for every inch over 5 ft tall.” (Remember $5 \text{ ft} = 60 \text{ inches}!$)

How tall should you be if you weigh 135 lbs?

\[
W = 5h - 200 \\
135 = 5h - 200 \\
200 + 200 \\
\hline
335 = 5h \\
5 \\
67 \text{ inches} = 5h
\]
Women’s recommended weight formula: “Give yourself 100 lbs plus 5 lbs for every inch over 5 ft tall.” (Remember 5 ft = 60 inches!)

How tall should you be if you weigh 85 lbs?

\[ W = 5h - 200 \]

\[ 85 = 5h - 200 \]

\[ 285 = 5h \]

\[ 57” = h \]
Women’s recommended weight formula: “Give yourself 100 lbs plus 5 lbs for every inch over 5 ft tall.” (Remember 5 ft = 60 inches!)

How tall should you be if you weigh zero lbs?

\[
W = 5h - 200 \\
0 = 5h - 200 \\
\frac{200}{5} = \frac{5h}{5} \\
40" = h
\]
Women’s recommended weight formula: “Give yourself 100 lbs plus 5 lbs for every inch over 5 ft tall.” (Remember 5 ft = 60 inches!)

Solve the formula for h.

\[ W = 5h - 200 \]
\[ +200 \]
\[ \frac{+200}{w+200} = \frac{5h}{5} \quad \text{Literal} \]
\[ \frac{w+200}{5} = \frac{5h}{5} \]
\[ h = \frac{w+200}{5} \]
On Line Tutoring:
http://www.mc3.edu/peopplac/lal/lal.htm#ot

Mat 011 Web page:
http://www.mc3.edu/crsprog/career/MATHSCI/mat011;mat011.htm

BlackBoard: http://blackboard.mc3.edu
Your username is: << first letter first name – full last name – last 1 digits of Datatel ID >>
Password is: << Datatel ID >>
For Example:
Student Name: John Smith  Datatel ID: 1234567
ID: jsmith4567
Password: 1234567
An repair store charges $50 for the first hour and $18 an hour for each additional hour.

\[ C = 18(t-1) + 50 = \]

<table>
<thead>
<tr>
<th>Hours</th>
<th>Calculations</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>(18(t-1) + 50)</td>
<td>86</td>
</tr>
<tr>
<td>8</td>
<td>(18(8-1) + 50)</td>
<td>176</td>
</tr>
<tr>
<td>(t)</td>
<td>(18(t-1) + 50)</td>
<td></td>
</tr>
</tbody>
</table>

\[ C = 18t + 34 \quad t \geq 1 \]