Mat 011 Agenda  Day 12: 2/18/02

- Attendance
- Graphing, S95  PowerPoint Lecture13

Homework:  Topic 13, page S103
Questions????
Dr. S computes a student’s grade for a course as follows: 20% research paper; 40% test average; 15% Essays; 25% final. A student, Rose, wants to get a C for the course. The grade must be greater than or equal to 70, but less than 80. Rose has 85 on research paper; 68 test average; 62 essays. What does Rose have to get on the exam to get a C?

Let \( x = \text{final exam} \)

\[
20\% (R) + 40\% (T) + 15\% (E) + 25\% (F) = G
\]

\[
0.20(85) + 0.40(68) + 0.15(62) + 0.25(x) = G
\]

\[
170 \leq G < 80
\]

\[
17 + 27.2 + 9.3 + 0.25x = G
\]

\[
53.5 + 0.25x = G
\]

\[
70 \leq 53.5 + 0.25x < 80
\]
\[ 70 \leq 53.5 + 0.25x < 80 \]
\[ -53.5 \leq 0.25x < 26.5 \]
\[ \frac{-53.5}{0.25} \leq \frac{x}{0.25} < \frac{26.5}{0.25} \]
\[ 66 \leq x < 106 \]
Graphing

- Graphing
- Cartesian Coordinate System
- Scatterplots
Objectives

• To plot points in the Cartesian Coordinate System
• To graph the points from a problem situations
• To interpret the graph from the problem situations
Connections

- Where is Chicago?
- Where is Springfield?
Connections

- Where is Chicago?
- Column C, Row 5

- Where is Springfield?
- Column B, Row 3
Descartes

Cartesian

(2, 3)

(3, 2)

ordered pairs
Graphing Points
Points on a plane are located by using ordered pairs.
The first coordinate corresponds to the x value; the
second coordinate corresponds to the y value.

Move the mouse in the quadrant to see the signs of the ordered pairs!
Graphing Points
Points on a plane are located by using ordered pairs. The first coordinate corresponds to the $x$ value; the second coordinate corresponds to the $y$ value.

Move the mouse in the quadrant to see the signs of the ordered pairs!

$(-, +)$

$X$ axis

$Y$ axis
Graphing Points

Points on a plane are located by using ordered pairs. The first coordinate corresponds to the x value; the second coordinate corresponds to the y value.

Move the mouse in the quadrant to see the signs of the ordered pairs!

(-,-)
Graphing Points
Points on a plane are located by using ordered pairs. The first coordinate corresponds to the \( x \) value; the second coordinate corresponds to the \( y \) value.

Move the mouse in the quadrant to see the signs of the ordered pairs!

\((+, -)\)
Graphing Points
We locate points on a plane by using ordered pairs. The first coordinate corresponds to the x value; the second coordinate corresponds to the y value.
Plot the points:

(2,1)
(1,-3)
(-3,-2)
(-4,2)
(0,3)
A phone company charges 15 cents a minute plus 80 cents for the call. What is the equation that relates cost and minutes? Plot some points. Graph the equation.

| Cost | \( Y = 0.15X + 0.80 \) |
A phone company charges 15 cents a minute plus 80 cents for the call. What is the equation that relates cost and minutes? Plot some points. Graph the equation.

\[ Y = 0.15X + 0.80 \]

<table>
<thead>
<tr>
<th>X</th>
<th>Y = 0.15X + 0.80</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.80</td>
</tr>
<tr>
<td>5</td>
<td>1.55</td>
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<tr>
<td>10</td>
<td>2.30</td>
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<td>15</td>
<td>3.05</td>
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<tr>
<td>20</td>
<td>3.80</td>
</tr>
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\[ Y = 0.15X + 0.80 \]

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$y$-intercept
A phone company charges 15 cents a minute plus 80 cents for the call. What is the equation that relates cost and minutes? Plot some points. Graph the equation.

\[ Y = 0.15X + 0.80 \]
Sally has a lawn mowing business. She bought a lawn mower for $200 and she charges $5 an hour. What is the equation that relates profit and hours worked? Plot this equation using intercepts.

Let \( h \) = # hours

\[ P = 5h - 200 \]

\[
\begin{array}{c|c}
\ h & \ P \\
\hline
\ 0 & \ -200 \\
\ 40 & \ \ 0 \\
\end{array}
\]
Sally has a lawn mowing business. She bought a lawn mower for $200 and she charges $5 an hour. What is the equation that relates profit and hours worked? Plot this equation using intercepts.

| Cost | \( C = 5h - 200 \) |
Sally has a lawn mowing business. She bought a lawn mower for $200 and she charges $5 an hour. What is the equation that relates profit and hours worked? Plot this equation using intercepts.

\[ C = 5h - 200 \]

<table>
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<th>C=5h-200</th>
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<tbody>
<tr>
<td>0</td>
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<tr>
<td>40</td>
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<table>
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<th>C</th>
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<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>40</td>
<td>100</td>
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Sally has a lawn mowing business. She bought a lawn mower for $200 and she charges $5 an hour. What is the equation that relates profit and hours worked? Plot this equation using intercepts.

\[ C = 5h - 200 \]

- Intercept: (0, -200)
- Intercept: (40, 0)