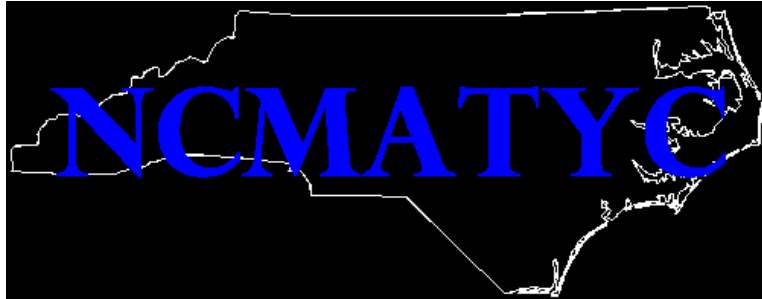
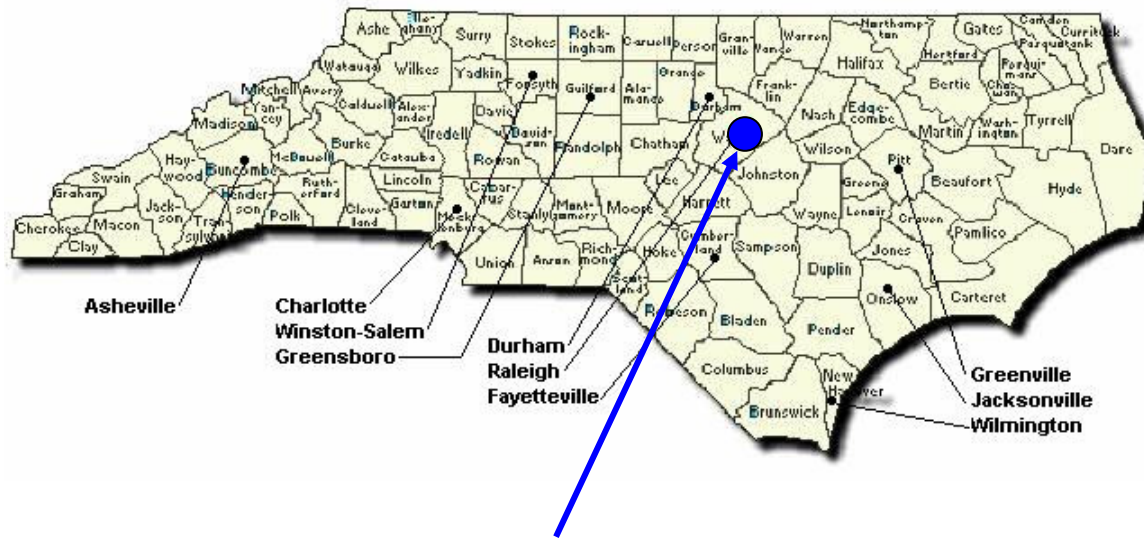


Using Excel and HTML Files to Supplement Mathematics & Statistics

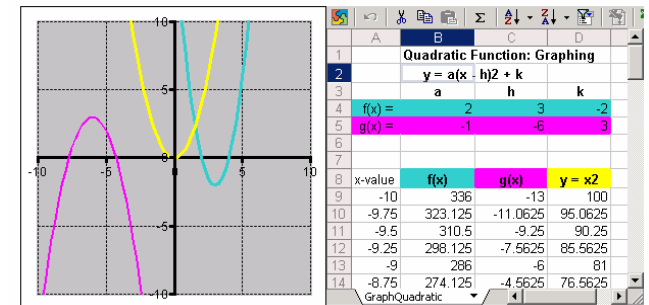


Annual Conference of
 North Carolina Mathematical
 Association of Two-Year Colleges



Durham Technical Community College
 Durham, NC
 March 10-11, 2005

Workshop by
 Dr. Claude S. Moore
 Danville (VA) Community College



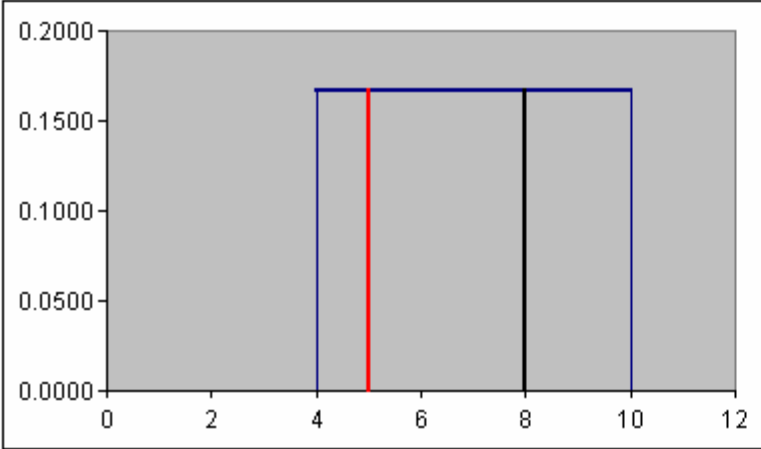
NOTE: Students may access this INTERACTIVE HTML file via the Internet.

Uniform Probability Distribution - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://learn.dcc.vccs.edu/ftp/dcmoorc/csmhomepage/M157/NotesPPT/UniformDist.htm>

Uniform Probability Distribution



| Input Values | | Results | |
|--|----|----------------------|-----------|
| Min. A | 4 | $P(X \leq C)$ | 0.1667 |
| Max. B | 10 | $P(X \geq C)$ | 0.8333 |
| 1st Value C | 5 | $P(C \leq X \leq D)$ | 0.5000 |
| 2nd Value D | 8 | $P(X \leq D)$ | 0.6667 |
| GOOD INPUT | | $P(X \geq D)$ | 0.3333 |
| Size of Rectangle: | | Height | 0.1667 |
| | | Length | 6.0000 |
| Dr Claude S Moore | | Develped: | 2/28/2004 |
| cmoore@dcc.vccs.edu | | Modified: | 3/7/2005 |

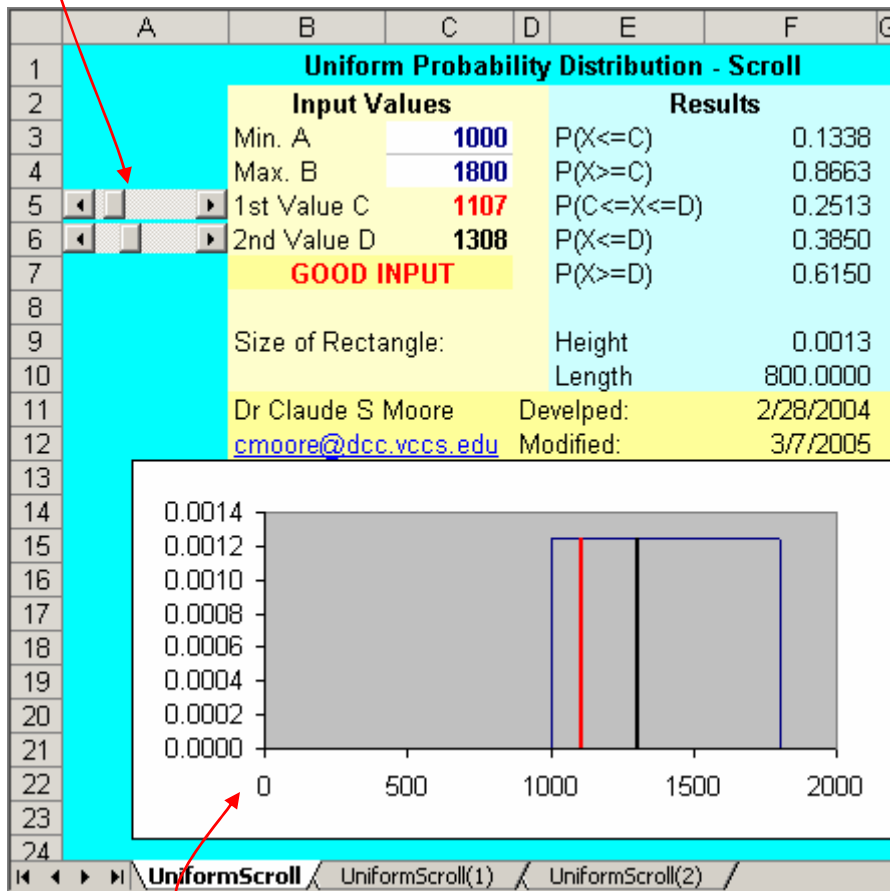
INSTRUCTIONS: Enter values for A, B, C, and D.

NOTE: The four values must satisfy the inequalities $A < B$ and $A \leq C \leq D \leq B$.

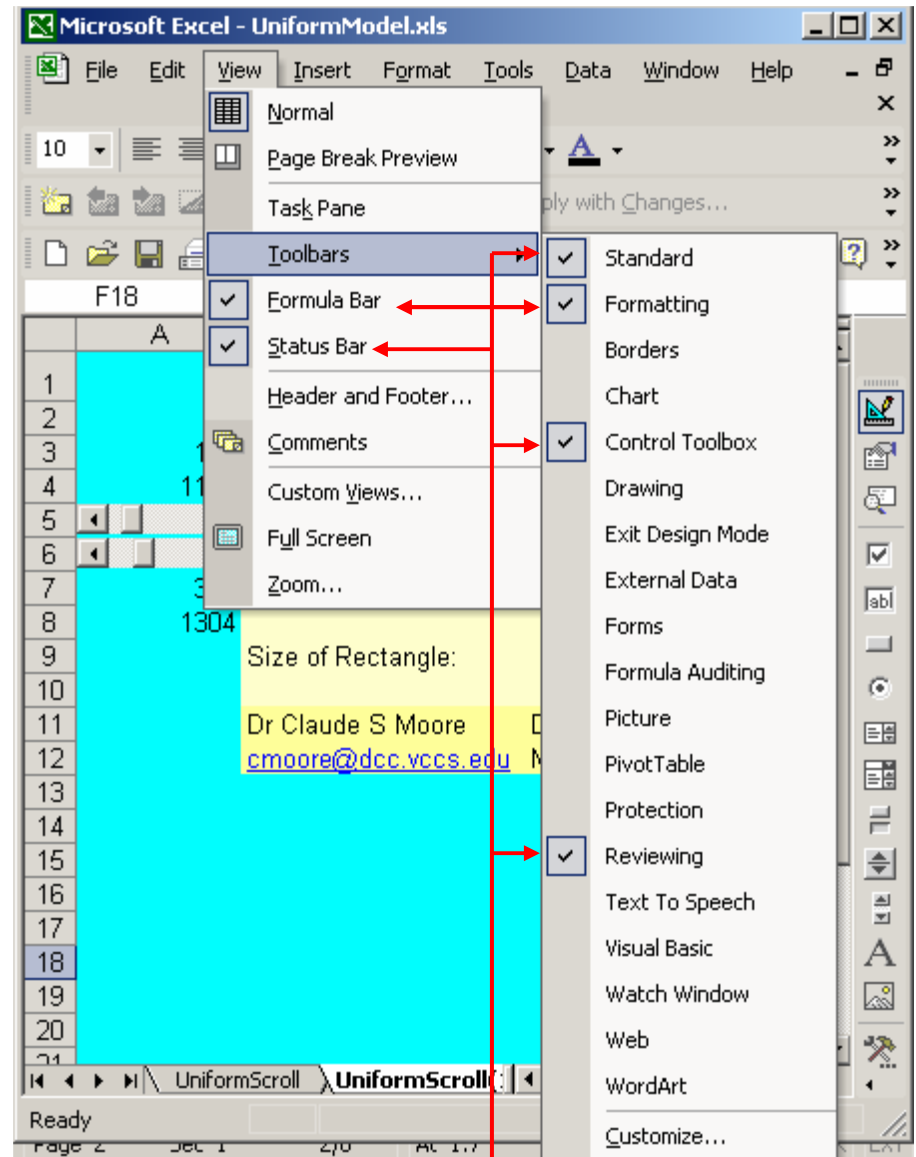
NOTE: This INTERACTIVE HTML file was developed in Microsoft Excel. To save as an HTML, click SAVE AS, Save as type: Web Page, Selection: Sheet, Add interactivity.

See pages 6 and 10 for more information about creating, editing, and saving this file.

NOTE: This is an Excel file using Scroll Bars (discussed on page 4). Values for A and B are entered. All other values are calculated.



NOTE: Construction of the graph is on page 6.



NOTE: Before beginning construction, activate the six bars that are checked.

NOTE: Scroll bars may be edited when the Design Mode is active. To activate and edit, click Design Mode button, click Properties, and begin editing values.

The screenshot shows a spreadsheet with a scroll bar control. The scroll bar is linked to cells A3 and A7. The properties window is open, showing the 'Misc' and 'Scrolling' sections. The 'Misc' section includes properties like Value (165), (Name) (Cvalue), AutoLoad (False), Enabled (True), Height (12), Left (0.75), LinkedCell (A3), Locked (True), MouseIcon ((None)), MousePointer (0 - fmMousePointerDefa), Placement (2), PrintObject (True), Shadow (False), Top (57.75), Visible (True), and Width (62.25). The 'Scrolling' section includes Delay (50), LargeChange (1), Max (1000), and Min (0).

NOTE: Scroll bars are Linked to A3 and A7.

NOTE: Cell B7 displays appropriate message ("GOOD INPUT" or "CHECK INPUT VALUES") after comparing values for A, B, C, and D.

The screenshot shows a spreadsheet with a scroll bar control. The scroll bar is linked to cells A3 and A7. The properties window is open, showing the 'Misc' and 'Scrolling' sections. The formula bar shows the formula for cell B7: `=IF(AND(C$3<C$4,C$3<=C$5,C$5<=C$4,A4<=A8,A4<=C4,A8<=C4),"GOOD INPUT","CHECK INPUT VALUES")`. The spreadsheet shows the following data:

| Row | Column | Value |
|-----|--------|------------|
| 3 | A | 165 |
| 4 | A | =C3+A3 |
| 5 | A | 1165 |
| 6 | A | 304 |
| 7 | A | =C3+A7 |
| 7 | B | GOOD INPUT |
| 8 | A | 1304 |

NOTE: A4 calculates C-value (C5).
A8 calculates D-value (C6).

NOTE: Press “Ctrl+~” to show the formula for the cells shown on the active worksheet.

Start calculations with F1 and F6. Use F1 and F6 to calculate F4, F5, and F7.

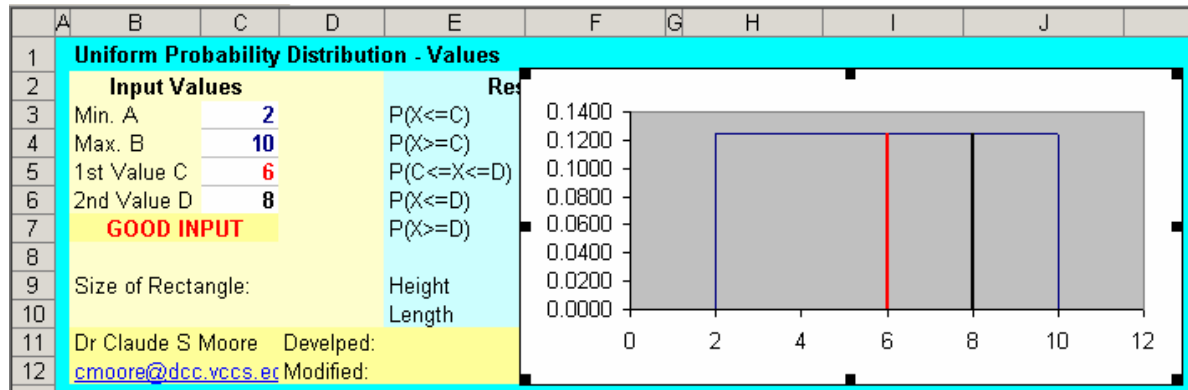
Compare values of A, B, C, and D. If they meet requirements, calculate; otherwise, state **Impossible**.

| Uniform Probability Distribution - Scroll | | | | | |
|--|-------------------|------|------------|-----------|--|
| Input Values | | | Results | | |
| 165 | Min. A | 1000 | P(X<=C) | 0.2063 | |
| 1165 | Max. B | 1800 | P(X>=C) | 0.7938 | |
| 1st Value C | | 1165 | P(C<=X<=D) | 0.1738 | |
| 2nd Value D | | 1304 | P(X<=D) | 0.3800 | |
| 304 | GOOD INPUT | | P(X>=D) | 0.6200 | |
| 1304 | | | | | |
| Size of Rectangle: | | | Height | 0.0013 | |
| | | | Length | 800.0000 | |
| Dr Claude S Moore | | | Developed: | 2/28/2004 | |
| cmoore@dcc.vccs.edu | | | Modified: | 3/7/2005 | |

| Results | | |
|------------|--|--|
| P(X<=C) | =IF(AND(C\$3<C\$4,C\$3<=C\$5,C\$5<=C\$4),(C\$5-C\$3)/(C\$4-C\$3),"Impossible") | |
| P(X>=C) | =IF(AND(C\$3<C\$4,C\$3<=C\$5,C\$5<=C\$4),1-F3,"Impossible") | |
| P(C<=X<=D) | =IF(AND(C3<C4,C3<=C5,C3<=C6,C5<=C4,C5<=C6,C6<=C4),F6-F3,"Impossible") | |
| P(X<=D) | =IF(AND(C\$3<C\$4,C\$3<=C\$5,C\$6<=C\$4),(C\$6-C\$3)/(C\$4-C\$3),"Impossible") | |
| P(X>=D) | =IF(AND(C\$3<C\$4,C\$3<=C\$5,C\$6<=C\$4),1-F6,"Impossible") | |
| Height | =IF(C4<C3,"B < A",1/(C4-C3)) | |
| Length | =IF(C4<C3,"B < A",C4-C3) | |
| Develj | 38045 | |
| Modifi | 38418 | |

See page 4 for the message in B7.

Rectangle of length AB has area equal to one (1).
The height is 1 divided by the length.



A15 through F26 calculate values to form the rectangle with area = 1.

H16 through I26 calculate values for lines C and D.

| Top of Rectangle | | Left End | Right End | C-Line | D-Line | |
|------------------|---------|----------|-----------|-----------|-----------|---------|
| x-value | y-value | x-left | x-right | C-x-value | D-x-value | |
| 2 | 0.1250 | | 2 | 10 | 6 | 8 |
| 2.8 | 0.1250 | | 2 | 10 | 6 | 8 |
| 3.6 | 0.1250 | | 2 | 10 | 6 | 8 |
| 4.4 | 0.1250 | | 2 | 10 | 6 | 8 |
| 5.2 | 0.1250 | | 2 | 10 | 6 | 8 |
| 6 | 0.1250 | | 2 | 10 | 6 | 8 |
| | | y-left | y-right | C-y-value | D-y-value | |
| 6.8 | 0.1250 | | 0 | 0 | 0 | 0 |
| 7.6 | 0.1250 | | 0.03125 | 0.03125 | 0.03125 | 0.03125 |
| 8.4 | 0.1250 | | 0.0625 | 0.0625 | 0.0625 | 0.0625 |
| 9.2 | 0.1250 | | 0.09375 | 0.09375 | 0.09375 | 0.09375 |
| 10 | 0.1250 | | 0.125 | 0.125 | 0.125 | 0.125 |

| Top of Rectangle | Left End | Right End | C-Line | D-Line | |
|------------------------------|----------|---------------|---------------|---------------|---------------|
| x-value | y-value | x-left | x-right | C-x-value | D-x-value |
| =C3 | =\$F\$9 | =\$C\$3 | =\$C\$4 | =\$C\$5 | =\$C\$6 |
| =((\$C\$4-\$C\$3)/10)+\$C\$3 | =\$F\$9 | =\$C\$3 | =\$C\$4 | =\$C\$5 | =\$C\$6 |
| =B17+(\$C\$4-\$C\$3)/10 | =\$F\$9 | =\$C\$3 | =\$C\$4 | =\$C\$5 | =\$C\$6 |
| =B18+(\$C\$4-\$C\$3)/10 | =\$F\$9 | =\$C\$3 | =\$C\$4 | =\$C\$5 | =\$C\$6 |
| =B19+(\$C\$4-\$C\$3)/10 | =\$F\$9 | =\$C\$3 | =\$C\$4 | =\$C\$5 | =\$C\$6 |
| =B20+(\$C\$4-\$C\$3)/10 | =\$F\$9 | =\$C\$3 | =\$C\$4 | =\$C\$5 | =\$C\$6 |
| | | y-left | y-right | C-y-value | D-y-value |
| =B21+(\$C\$4-\$C\$3)/10 | =\$F\$9 | =0 | =0 | =0 | =0 |
| =B22+(\$C\$4-\$C\$3)/10 | =\$F\$9 | =E22+\$F\$9/4 | =F22+\$F\$9/4 | =H22+\$F\$9/4 | =I22+\$F\$9/4 |
| =B23+(\$C\$4-\$C\$3)/10 | =\$F\$9 | =E23+\$F\$9/4 | =F23+\$F\$9/4 | =H23+\$F\$9/4 | =I23+\$F\$9/4 |
| =B24+(\$C\$4-\$C\$3)/10 | =\$F\$9 | =E24+\$F\$9/4 | =F24+\$F\$9/4 | =H24+\$F\$9/4 | =I24+\$F\$9/4 |
| =B25+(\$C\$4-\$C\$3)/10 | =\$F\$9 | =E25+\$F\$9/4 | =F25+\$F\$9/4 | =H25+\$F\$9/4 | =I25+\$F\$9/4 |

Formulas used to calculate the values above.

Graph two lines and find the Point of Intersection.

Use $y = mx + b$ form by entering values for $m =$ slope and $b =$ y-intercept.

| | A | B | C | D | E | F | G | H | I | J | K |
|----|--|-----------|-------------|---|------------------------------|-----|----------|----|----------|--------|---|
| 1 | Linear Function: Graphing | | | | | | | | | | INSTRUCTIONS: Enter the x-intercept of L1. Enter the y-intercept of L2. Then enter the slopes (values greater than 0 go up to the right, values less than 0 go down to the right) in the window as the SLOPE and Y-INTERCEPT. |
| 2 | $y = mx + b$ | | | | | | | | | | |
| 3 | Slope | | Y-intercept | | | | | | | | |
| 4 | $f(x) = -1.5x + 3$ | -1.5 | 3 | | | | | | | | |
| 5 | $g(x) = 2x - 11$ | 2 | -11 | | | | | | | | |
| 6 | Window Size | | | | | | | | | | |
| 7 | Min. | -50 | | | | | | | | | |
| 8 | Max. | 50 | | | | | | | | | |
| 9 | Dr. Claude S. Moore | | | | | | | | | | |
| 10 | cmoore@dcc.vccs.edu | | | | | | | | | | |
| 11 | Developed: 2/28/2004 | | | | | | | | | | |
| 12 | Modified: 8/18/2004 | | | | | | | | | | |
| 13 | | | | | | | | | | | |
| 14 | x-value | L1 = f(x) | L2 = g(x) | | | | | | | | |
| 15 | -50 | 78 | -111 | | | | | | | | |
| 16 | -48.75 | 76.125 | -108.5 | | | | | | | | |
| 17 | -47.5 | 74.25 | -106 | | | | | | | | |
| 18 | -46.25 | 72.375 | -103.5 | | | | | | | | |
| 19 | -45 | 70.5 | -101 | | | | | | | | |
| 20 | -43.75 | 68.625 | -98.5 | | L1: | 3 | 2 | 6 | -1.5 | 3 | |
| 21 | -42.5 | 66.75 | -96 | | L2: | 4 | -2 | 22 | 2 | -11 | |
| 22 | -41.25 | 64.875 | -93.5 | | Point of Intersection | | | | | x-int. | y-int. |
| 23 | -40 | 63 | -91 | | | L1: | (2, 0) | | (0, 3) | | |
| 24 | -38.75 | 61.125 | -88.5 | | | L2: | (5.5, 0) | | (0, -11) | | |
| 25 | -37.5 | 59.25 | -86 | | | | | | | | |

$f(x)$ is $3x + 2y = 6$ and $g(x)$ is $4x - 2y = 22$. Enter values for A and B to calculate m and y-intercept.

Then enter m and y-intercept in C4 through D5 to construct the graph and calculate Point of Intersection.

This writes the functional equation: $f(x) = -1.5x + 3$.

A4 fx =CONCATENATE("f(x) = ",C4,"x",IF(D4<0," - "," + "),ABS(D4))

| | A | B | C | D | E |
|---|---|------|-------------|---|---|
| 1 | Linear Function: Graphing | | | | |
| 2 | $y = mx + b$ | | | | |
| 3 | Slope | | Y-intercept | | |
| 4 | =CONCATENATE("f(x) = ",C4,"x",IF(D4<0," - "," + "),ABS(D4)) | -1.5 | 3 | | |
| 5 | =CONCATENATE("g(x) = ",C5,"x",IF(D5<0," - "," + "),ABS(D5)) | 2 | -11 | | |
| 6 | | | | | |

| | A | B | C | D | E | F | G | H | I | J | K | | | | | | |
|----|--|-------------|-----------|-----------|------|----------|--------|----------|--------|---|--|--|--|--|--|--|--|
| 1 | Linear Function: Graphing | | | | | | | | | | INSTRUCTIONS: E intercept of L1. E intercept of L2. TI lines) in the wind as the SLOPE and SLOPE: Enter a nu slopes (values gr right). For negativ (go down to the r Y-INTERCEPT: En positive y-interce negative y-interce INTERSECTION PO ENTER that x-val C15 are equal. Th y) point. | | | | | | |
| 2 | $y = mx + b$ | | | | | | | | | | | | | | | | |
| 3 | Slope Y-intercept | | | | | | | | | | | | | | | | |
| 4 | $f(x) = -1.5x + 3$ | | -1.5 | 3 | | | | | | | | | | | | | |
| 5 | $g(x) = 2x - 11$ | | 2 | -11 | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | |
| 7 | Window Size | | | | | | | | | | | | | | | | |
| 8 | Min. -50 | | | | | | | | | | | | | | | | |
| 9 | Max. 50 | | | | | | | | | | | | | | | | |
| 10 | Dr Claude S Moore | | | | | | | | | | | | | | | | |
| 11 | cmoore@dcc.vccs.edu | | | | | | | | | | | | | | | | |
| 12 | Developed: 2/28/2004 | | | | | | | | | | | | | | | | |
| 13 | Modified: 8/18/2004 | | | | | | | | | | | | | | | | |
| 14 | | x-value | L1 = f(x) | L2 = g(x) | | | | | | | | | | | | | |
| 15 | | -50 | 78 | -111 | | | | | | | | | | | | | |
| 16 | | -48.75 | 76.125 | -108.5 | | | | | | | | | | | | | |
| 17 | | -47.5 | 74.25 | -106 | | | | | | | | | | | | | |
| 18 | | -46.25 | 72.375 | -103.5 | | | | | | | | | | | | | |
| 19 | | -45 | 70.5 | -101 | | | | | | | | | | | | | |
| 20 | | -43.75 | 68.625 | -98.5 | | | | | | | | | | | | | |
| 21 | | -42.5 | 66.75 | -96 | | | | | | | | | | | | | |
| 22 | | -41.25 | 64.875 | -93.5 | | | | | | | | | | | | | |
| 23 | | -40 | 63 | -91 | | | | | | | | | | | | | |
| 24 | | -38.75 | 61.125 | -88.5 | | | | | | | | | | | | | |
| 25 | | -37.5 | 59.25 | -86 | | | | | | | | | | | | | |
| | | AX + BY = C | | | m | | y-int | | | | | | | | | | |
| | L1: | 3 | 2 | 6 | -1.5 | 3 | | | | | | | | | | | |
| | L2: | 4 | -2 | 22 | 2 | -11 | | | | | | | | | | | |
| | Point of Intersection | | | | | | x-int. | | y-int. | | | | | | | | |
| | | L1: | | (2, 0) | | L2: | | (0, -11) | | | | | | | | | |
| | | (4, -3) | | (5.5, 0) | | (0, -11) | | | | | | | | | | | |

F24 =CONCATENATE(" ",INT(10*((D\$4-D\$5)/(C\$5-C\$4))/10," ",INT(10*((D\$4*C\$5-D\$5*C\$4)/(C\$5-C\$4))/10,""))

| | E | F | G | H | I | J | K |
|----|------------------------------|-----|----|--|----------|--|--------|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | AX + BY = C | | | m | | y-int | |
| 20 | L1: | 3 | 2 | 6 | =F20/G20 | =H20/G20 | |
| 21 | L2: | 4 | -2 | 22 | =F21/G21 | =H21/G21 | |
| 22 | Point of Intersection | | | | x-int. | | y-int. |
| 23 | | L1: | | =CONCATENATE(" ",INT(10*(D\$5-D\$4)/(C\$5-C\$4))/10," ",INT(10*(D\$4*C\$5-D\$5*C\$4)/(C\$5-C\$4))/10,"") | | =CONCATENATE(" ",INT(10*(D\$5-D\$4)/(C\$5-C\$4))/10," ",INT(10*(D\$4*C\$5-D\$5*C\$4)/(C\$5-C\$4))/10,"") | |
| 24 | | L2: | | =CONCATENATE(" ",INT(10*(D\$5-D\$4)/(C\$5-C\$4))/10," ",INT(10*(D\$4*C\$5-D\$5*C\$4)/(C\$5-C\$4))/10,"") | | =CONCATENATE(" ",INT(10*(D\$5-D\$4)/(C\$5-C\$4))/10," ",INT(10*(D\$4*C\$5-D\$5*C\$4)/(C\$5-C\$4))/10,"") | |
| 25 | | | | | | | |

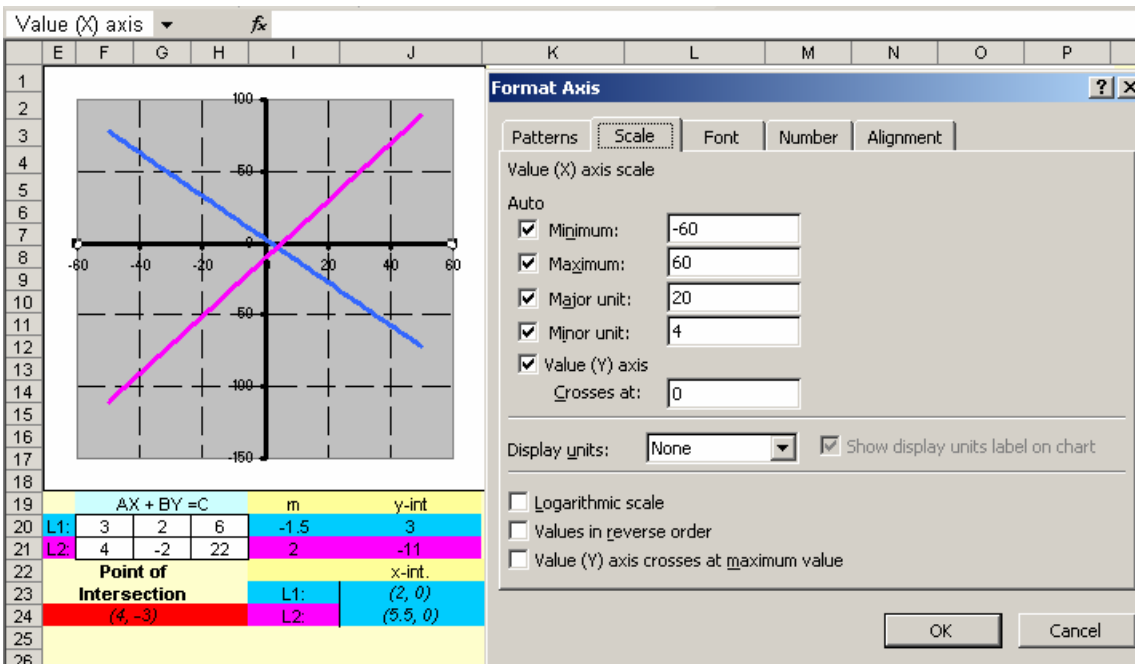
INSTRUCTIONS: ENTER numbers into cells E4, F4, G4, H4, I4, J4, K4. This Excel program will graph and Y-INTERCEPT values are changed.

SLOPE: Enter a number for the slope (values greater than zero). For negative slopes (values less than zero), enter a negative number.

Y-INTERCEPT: Enter a number for the y-intercept (values less than zero).

INTERSECTION POINT: Estimate the point of intersection. The point of intersection appears in the window as the SLOPE and Y-INTERCEPT values are changed.

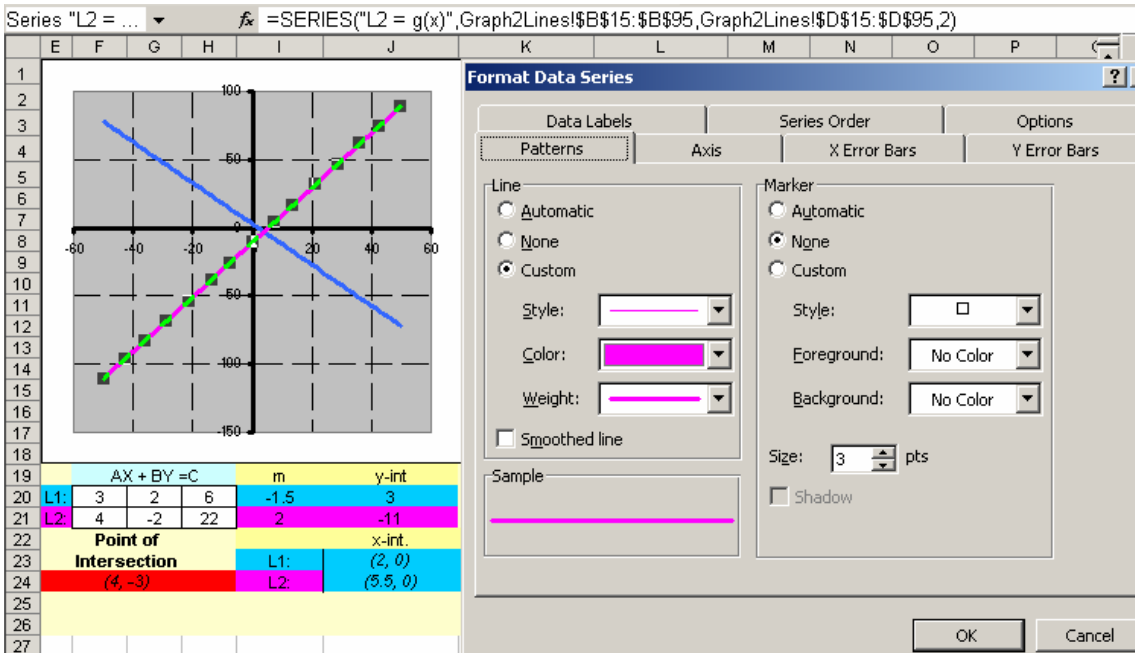
This prints the Point of Intersection as an ordered pair.



Right click on the X-axis to format it.

Right click on the Y-axis to format it.

You can format with Patterns, Scale Font, Number, and Alignment.



Right click on the a line to format it.

You can format with Patterns, Axes, Data Labels, Series Order, X Error Bars, Y Error Bars, and Options.

In FrontPage:

1. In **Page** view, in the **Normal** pane, right-click the ActiveX control that you want to modify.
2. Click **ActiveX Control Properties** on the shortcut menu.
3. Type or modify properties in the **ActiveX Control Properties** dialog box.

Two properties tabs (**Object Tag** and **Parameters**) are added to all controls by Microsoft FrontPage. Since each control has unique properties, consult the documentation for the control to learn about its specific properties.

Object Tag

Type or modify the following information:

Name To specify a name for the ActiveX control, type a name in the **Name** box.

Alignment To specify the alignment of the ActiveX control, choose a value (such as **Default**, **Left**, **Right**, and so on) under **Alignment**.

Border thickness To specify the border thickness (in [pixels](#)) of the ActiveX control, specify the desired value in the **Border thickness** box.

Horizontal spacing To specify the horizontal spacing (in pixels) of the ActiveX control, specify the desired value in the **Horizontal spacing** box.

Vertical spacing To specify the vertical spacing (in pixels) of the ActiveX control, specify the desired value in the **Vertical spacing** box.

Width To specify the width (in pixels) of the ActiveX control, specify the desired value in the **Width** box.

Height To specify the height (in pixels) of the ActiveX control, specify the desired value in the **Height** box.

HTML To specify alternative text that will be displayed in Web browsers without ActiveX support, type the desired text in the **HTML** box.

Code Source To specify a network or Internet location from which the control can be automatically installed, type the path in **Code Source**.

Parameters

- To add a parameter, click **Add**.
- To modify a parameter, click **Modify**.
- To Remove a parameter, click **Remove**.

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