I. Getting Started

A. How to turn the TI-82/83/83 Plus on/off

- Press **ON** at the bottom left of the calculator keys
- Press **2nd** and then **ON**

Note: The **TI-82/83/83 Plus** has an automatic "shutdown" feature which powers the **TI-82/83/83 Plus** down after a few minutes. However, the contents of the display are saved for when it is next turned on.

B. How to clear all existing information

- **TI-82**
  1. Press **2nd** and then **MEM**;
  2. Press **3: Reset** and then **2: Reset**

  This will clear all data (including any programs) and restore all default settings.
- **TI-83**
  1. Press **2nd** and then **MEM**;
  2. Press **5: Reset** and then **2: Defaults**

  This will restore all default settings (without destroying any stored data or programs).
- **TI-83 Plus**
  1. Press **2nd** and then **MEM**;
  2. Press **7: Reset** and then **2: Defaults**

C. How to adjust the contrast

- Press and release the yellow **2nd** key.
- Then to darken the contrast, press the blue up arrow key – alternate pressing the yellow **2nd** key and the blue up arrow key until the screen is as dark as you want it. The higher the number in the right hand corner of the viewing window, the darker the contrast.
- To lighten the contrast, press and release the yellow **2nd** key and then press the blue down arrow key – alternate pressing the yellow **2nd** key and the blue down arrow key until the screen is as light as you want it.

II. Entering and Plotting Function

A. How to enter and plot a function

- Press **Y=**
- Press the keys required to create a function rule. To represent the independent variable **X**, press the variable key **X,T,θ**. In this example, type in the function $Y_1 = x^2$ **+3x +2** by pressing the following sequence of keys:

X,T,θ x^2 **+** **3** **X,T,θ** **+** **2**

- Press **Zoom** and then **6** to select the **6 : ZStandard** option to return to the standard viewing window.
- When the function is complete, press **GRAPH.**

B. How to enter and plot more than one function

- Enter the first function as described in "How to enter and plot a function."
- Enter remaining functions by pressing **Y=** and move the cursor to the next empty function rule line.
- Type the appropriate keys to enter the desired functions.
- Repeat the two previous steps until all functions have been entered.
- Press **GRAPH** to display the graphs of all entered functions.

C. How to turn a function on/off

- Press **Y=** (note that the = symbol for Y_1 is darkened. This means that this function is "selected", and will be plotted.
- Move the left cursor over the = symbol until it is flashing
- Press **ENTER** (this de-selects the function and removes the darkened background; it will not plot the function Y_1.

D. How to enter and plot a function using parameters

- Press **Y=**
- To enter the parameter **A**, press **ALPHA**, followed by **MATH** which has the alpha function **A** printed above the key on the right.
- Press the required keys to complete entering the rule

$$Y_1 = A(X-2)^2 + 1$$

- Press **2nd** and then **QUIT** to return to the Home Screen
- To enter a specific value for **A** in the Home Screen (for example, A = 2.7), press the following key sequence:

2 . 7 STO ALPHA MATH ENTER

This sets the current value of the parameter **A** to **2.7**

- Press **GRAPH** to observe the graph
- Try entering other values for **A**

E. How to plot a family of functions

- Press **Y=** to define a function.
- Enter the rule for the function by entering the following sequence:

X,T,θ x^2 **+ 2nd (- 2 , 0 , 2 2nd)**

- The graph of f(x) = x^2 + a will be plotted for a = -2, 0, and 2

F. How to restrict the domain of a function

- Press **MODE**
- Position the cursor on the line that contains the **Connected/Dot** option.
- Select the **Dot** option and press **ENTER**. (This is the only mode in which functions with restricted domains will work properly.)
- Press **Y =** and press the appropriate keys to enter the function:

L_1

- Press **GRAPH**

G. How to clear a function rule and its graph

- Press **Y=**
- Use the cursor keys to move to the function rule you wish to clear.
- Press **CLEAR**
- Repeat the previous two steps to clear any other function rules and their graphs.

III. Working with Functions and Graphs

A. How to display graph coordinates

- Press **Y=**
- Enter the function rule **Y =** x^2
- Press **GRAPH**
- Press **TRACE**
- Use the **left and right cursor** keys to **"trace"** the path of the function. The coordinates of the cursor are updated each time the cursor keys are pressed.
- Note: On the TI – 83 and TI- 83 Plus, the function rule is displayed in the top left of the screen when the **TRACE** feature is on. This can be turned **Off/On** by pressing **2nd** and then **Zoom** for **FORMAT** and changing the **ExpON/ExpOFF** option.

B. How to display the function rule and graph simultaneously

- Press **MODE**
- Press the **down cursor** key until it flashes over the **FullScreen/Split** mode line (or the **Full Horiz G-T** line on the TI-83).
- Press the **right cursor** key so that the cursor flashes over the **Split** option (or **Horiz** on the TI-83).
- Press **ENTER** to invoke this option.
- Press **GRAPH** to display in the top half of the screen.
- Press **Y =** (note that any defined function rule is displayed in the bottom half of the screen.
- **Note**: to view graph and a table of values, press mode, scroll down to Full Screen/Split and select G-T.

IV. Changing the Viewing Window

A. How to change the default viewing window

- Press **ZOOM**
- Select the **6 : ZStandard** option and press **ENTER**. This will return to the default viewing window (the region bounded by the points $-10 \leq x \leq 10$ and $-10 \leq y \leq 10$).

B. How to specify the viewing window dimensions

- Press **WINDOW**
- Use the **up** and **down cursor** keys to move to the **Window** option you wish to alter. Then enter the new figure. The available options are explained below:
  1. **Xmin/Xmax –** the minimum/maximum x value that will be visible in the viewing window
  2. **Ymin/Ymax –** the minimum/maximum y value that will be visible in the viewing window
  3. **Xscl/Yscl –** the number of units between markings on the x-axis/y-axis
  4. **Xres –** which is the pixel resolution (from 1 to 8). **Xres = 1** means one calculation per pixel and **Xres = 8** means one calculation every 8 pixels.
- Press **GRAPH**

C. How to locate a graph not visible in the current viewing window

- Press **GRAPH** to display the Graph Screen (try $Y_1 = x^2 + 12$)
- Press **TRACE** to display graph coordinates.
- If Y_1 is the graph that is not in view, press **ENTER**. This will reposition the viewing window so that a portion of the graph of Y_1 is now displayed.

V. Working with Additional Features on the TI-82/83/83 Plus

A. How to create a table of values

- Press **Y = and define the function** $Y_1 = x^2$ for **23 ≤ x ≤ 25**
- Press **2nd** and then **WINDOW** for the **TblSet** key
- Enter 23 as the new **TblMin/TblStart**. This sets the new minimum x value for the table.
- Enter 0.1 as the new Δ**Tbl** (x increment for the table).
- Select **Auto** as the data entry option for the **Indpnt** variable, and press **ENTER**
- Select Auto as the data entry option for the **Depend** variable, and press **ENTER**
- Press **2nd** and then press **GRAPH** for the **TABLE** key.

B. How to plot points using the "list" function

- Press **STAT** and press **1** to select the **1 : Edit** option
- If points are already listed in a column, you may clear them by moving the cursor to the head of the column and pressing **CLEAR** then **ENTER**.
- Enter the x values into the column L_1**.** Press **ENTER** after each entry.
- Enter the y values into the column L_2. Press **ENTER** after each entry.
- Press **2nd** and then **Y=** for the **STAT PLOT** key.
- Press **4** to select the **4: PlotsOff** option. This returns the user to the Home Screen. Press **ENTER**. This clears all currently defined plots.
- Press **2nd** and then **Y=** for the **STAT PLOT** key
- Press **1** to select the **1:Plot 1** option
- Use the **cursor** keys and **ENTER** to set the desired options.

C. How to fit a function to data by eye

- Press **Y =**
- To enter the parameter **A**, press **ALPHA**, followed by **MATH** for the **A** key.
- Press **X,T,** θ
- Press **2nd** and **MODE** for **QUIT** to return to the Home Screen.
- To enter a specific value for **A** (for example, A = 2.7) press the following key sequence:

2 . 7 STO ALPHA MATH ENTER

This sets the current value of the parameter **A** to 2.7

- Press **GRAPH** to observe whether the value of **A** has given a "good fit" for the data set.
- Repeat the two previous steps to improve the fit if necessary.

VI. Entering brackets, exponents and fractions

A. How to enter brackets

- Press **(** to open the brackets.
- Enter any symbols/terms that should be within the brackets.
- Press **)** to close the brackets.

B. How to enter exponents (powers)

- If the exponent is 2, press X,T, θ followed by x^2.
- If the exponent is -1, press X,T, θ followed by x^{-1}.
- If the exponent is a number other than 2 or -1, press X,T, θ followed by ^ followed by the exponent.

C. How to enter fractions

- For simple fractions, press the keys for the numerator.
- Press ÷ (it will appear as **"/"** on the screen).
- Press the keys for the denominator.
- For more complicated fractions (involving more than one term in either the numerator or denominator or both), ensure that you use brackets to preserve the order of operations.

A. <u>Linear Equations</u> Example: 3.1(x – 5) = 2x – 5

Step 1: Enter one side of the equation under Y_1 and the other side of the equation under Y_2. Let $Y_1 = 3.1(x-5)$ and $Y_2 = 2x-5$

Step 2: Hit **GRAPH**…note: to find the intersection, you have to see the point where the two lines intersect. If you cannot see this point, then you will need to change the size of your viewing window.

Step 3: The solution to the equation will be the point where the two lines intersect. To find this point of intersection, go to **2nd TRACE** which is the **CALCULATE** menu. Select #5: intersect…then hit **ENTER.**

Step 4: The calculator asks for the first curve. Use the arrow keys to move the cursor so it is on one of the lines (it does not matter which one). Then hit **ENTER** ; the cursor should jump to the other line. If it does not, use the arrow keys to move it to the other line. Then hit **ENTER**…hit **ENTER** again for the guess.

Step 5: The calculator will then find the point where the two lines intersect. Since you are solving the equation for x, you just want the x-coordinate of the point. The solution to this equation would be x = 9.55.

B. <u>Linear Inequalities</u> Example: 2x – 3 > 5

Step 1: Go to **Y=**. Let $Y_1 = 2x-3$ and $Y_2 = 5$ and then press **GRAPH**

Step 2: Since 2x – 3 > 5, you need to determine where the graph of $Y_1 > Y_2$ or where the graph of Y_1 lies above the graph of Y_2. This occurs to the right of the point of intersection.

Step 3: Next, find the point of intersection. Press **2nd TRACE**, select **#5**: **intersect**. Then hit **ENTER**.

Step 4: The calculator asks for the first curve. Use he arrow keys to move the cursor so it is on one of the lines. Then hit **ENTER**. The cursor should jump to the other line. If it does not, use the arrow keys to move it to the other line. Then hit **ENTER**. Hit **ENTER** again for the guess.

Step 5: The point of intersection is (4, 5). We know the solution to an inequality is not a point. We are looking for all values that make 2x – 3 > 5 true. These values are to the right of the point of intersection. Therefore, the solution to the inequality is (4, ∞).

C. <u>Vertex of a Parabola</u> Example: f(x) = $2x^2 + 16x + 33$

Step 1: Go to **Y=**. Enter the function under Y_1

Step 2: Then **GRAPH**. If you cannot se the graph in the standard viewing window, then go to **ZOOM**. And select **0: ZoomFit** to fit the window to your graph.

Step 3: Determine if the vertex is a minimum or maximum value on the graph.

Step 4: Press **2nd TRACE** and select with **3: minimum or 4: maximum**. Hit **ENTER**.

Step 5: For the left bound, use the arrow keys to move the blinking cursor to the left of the vertex and then hit **ENTER**. For the right bound, use the arrow keys to move the cursor to the right of the vertex and then hit **ENTER**. Hit **ENTER** again and your calculator will compute the vertex of the parabola.

Step 6: The coordinates of the vertex appear at the bottom of the screen (x = -4 and y = 1).

D. <u>Quadratic Equations</u> Example: $3x^2 + 3x - 6 = 0$

Step 1: Go to **Y=** and enter the function

Step 2: The graphical solution to a quadratic equation will be the x-intercept(s). If there are 2 real solutions, the graph will cross the x-axis twice. If there is 1 ral solution, the graph will hit the x-axis once. If there are no real solutions, the graph will never cross the x-axis.

Step 3: To find the x-intercepts or zeroes, press **2nd TRACE** and select **2: zero**. Hit **ENTER**.

Step 4: To find the intercept on the left, use the arrow keys to move the cursor to the left of the point, hit **ENTER**. Then move the cursor to the right of the point, hit **ENTER** and then hit **ENTER** again. The x-intercept is x = -2.

Step 5: To find the intercept on the right, repeat the process in step 4. The other intercept is x = 1.

Step 6: The solution to the quadratic equation is x = -2 and 1.

E. <u>Quadratic Inequalities</u> Example: $3x^2 + 3x - 6 < 0$

Step 1: Go to **Y=** and enter the function. Hit **GRAPH**

Step 2: You want to determine where the quadratic function is less than 0. So you need to look at the graph and determine what part of the graph lies below the x-axis or the line y = 0.

Step 3: The part of the graph that is below the x-axis is the part that lies between the x-intercepts.

Step 4: Remember – since you are solving an inequality, the solution will be an interval or the union of two intervals. The solution to this inequality is the interval (-2, 1).

F. <u>Absolute Value Equations</u> Example: $|2x + 5| = 2$

Step 1: Go to **Y=** and let $Y_1 = abs(2x + 5)$ and $Y_2 = 2$

Step 2: Hit **GRAPH** (graph in standard window)

Step 3: The V-shaped graph of Y_1 intersects the horizontal line of Y_2 at two points. Find these points using the intersection.

Step 4: Press **2nd TRACE,** select **#5: intersect.** Hit **ENTER**.

Step 5: To find the point on the left, place the cursor to the left of that point. Hit **ENTER**. The cursor jumps to the next line. Hit **ENTER** again. Then hit **ENTER** again to get the point of intersection. The x-value is -3.5

Step 6: To find the other point of intersection, go to **2nd TRACE**, select **#5: intersect**. Hit **ENTER**.

Step 7: To find the point on the right, place the cursor to the right of that point. Hit **ENTER**. The cursor jumps to the next line. Hit **ENTER** again. Then hit **ENTER** again to get the point of intersection. The x-value is -1.5.

G. <u>Absolute Value Inequalities</u> Example: $|-3x+1|<5$

Step 1: Go to **Y=** and let $Y_1 = abs(-3x+1)$ and $Y_2 = 5$

Step 2: Hit **GRAPH** (graph in standard window)

Step 3: Since $|-3x+1|<5$, you need to determine where the graph of $Y_1 < Y_2$ or where the graph of Y_1 lies below the graph of Y_2. This occurs between the two points of intersection.

Step 4: Find the points of intersection as shown in Absolute Value Equations

Step 5: The solution to the inequality is (-1. 3, 2).

H. <u>Constructing a Scatterplot & Line Graph</u> Example:

x (year)	1988	1989	1990	1991	1992	1993	1994
y (sales)	3385	3345	3472	3020	3116	2916	2976

Step 1: To enter data into lists, go to **STAT**, select **#1: Edit**. Hit **ENTER**.

Step 2: The cursor is under L_1 and ready for you to enter your data. Place the x- or input values in List 1. After each entry, hit **ENTER**. When you have entered all the data for List 1, use the blue arrow keys to move the cursor over to L_2. Enter the y- or output values in List 2.

When all of your data is entered, then hit **2nd MODE** to quit and return to the home screen.

Step 3: To plot the points, go to **2nd Y=**. Move the cursor to 1: Plot 1 and hit **ENTER**. You can now set up Plot 1 to do a scatterplot.

Step 4: Use the arrow keys to move the cursor to **On** and hit **ENTER**. Arrow down to **Type** and select the first graph under type (looks like dots). Hit **ENTER**. Use the arrow keys to move down to **Xlist:** Make sure L_1 is here. If it is not, enter the name of the correct list. These names are found above the numeric keys 1-6.

Use the arrow keys to move down to **Ylist**: Make sure L_2 is here. Use the arrow keys to move down to **Mark**: you can select any of these (the first one is easier to see.)

To exit back to the home screen press **2nd MODE**.

Step 5: To plot the points, go to **ZOOM** and select **9: ZoomStat** and hit **ENTER**.

To construct a line graph, follow the steps for constructing a scatterplot. On step #4 when you arrow down to Type: select the second graph under type (looks like a connected line). Hit ENTER. Following the remaining steps.

I. <u>Entering a Matrix</u> Example: $\begin{pmatrix} 1 & 2 & 3 \\ -1 & -4 & -5 \\ 0 & -2 & 8 \end{pmatrix}$

Step 1: Press **MATRX** or **2ND** X^{-1}**.**

Step 2: Use the right arrow key to go to **EDIT** menu and select any matrix name to enter your matrix under. Use the down arrow key to select one.

Step 3: Hit **ENTER**.

Step 4: Enter the size (dimension) first. After every number you input, you must hit **ENTER**.

Step 5: On size is entered, input the entries. The calculator enters them by rows. Remember, after each entry you input, you must hit **ENTER**.

J. <u>Matrix Multiplication</u> Example: $\begin{pmatrix} 1 & -2 & 5 \\ 1 & 0 & -2 \\ 1 & 3 & 2 \end{pmatrix} \bullet \begin{pmatrix} -1 & 4 & 2 \\ -3 & 0 & 1 \\ 5 & 1 & 0 \end{pmatrix}$

Step 1: Enter the two matrices you want to multiply.

Step 2: Go to **MATRX** or **2nd** X^{-1} and under **NAMES** select the name of the first matrix. Hit **ENTER**.

Step 3: Since you want to multiply matrices, press **x**.

Step 4: Go back to **MATRX** or **2nd** X^{-1} and under **NAMES** select the name of the second matrix and hit **ENTER**.

Step 5: Hit **ENTER** again and the resulting matrix will be the solution.

Step 6: If you get an error message **ERR: DIM MISMATCH**, then it is not possible to multiply the two matrices.

K. <u>Addition and Subtraction of Matrices</u> Example:

$$\begin{pmatrix} 1 & -2 & 5 \\ 1 & 0 & -2 \\ 1 & 3 & 2 \end{pmatrix} + \begin{pmatrix} -1 & 4 & 2 \\ -3 & 0 & 1 \\ 5 & 1 & 0 \end{pmatrix}$$

Step 1: Enter the two matrices you want to add or subtract.

Step 2: Go to **MATRX** or **2nd** X^{-1} and select the name of the first matrix. Hit **ENTER**.

Step 3: Since you want to add or subtract the matrices, either press **+** or **–** depending on the operation.

Step 4: Go back to **MATRX** or **2nd** X^{-1} and under **NAMES** select the name of the second matrix and hit **ENTER**.

Step 5: Hit **ENTER** again and the resulting matrix will be the solution.

Step 6: If you get an error message **ERR: DIM MISMATCH**, then it is not possible to add or subtract the two matrices.

L. <u>To Find the Inverse of a Matrix</u> Example: $\begin{pmatrix} 3 & 2 & 1 \\ 1 & 1 & -1 \\ 4 & 3 & 1 \end{pmatrix}$

Step 1: Enter the matrix you want to find the inverse of. After the matrix is entered be sure you go back to the home screen.

Step 2: Go to **MATRX** or **2nd** X^{-1} and under **NAMES** select the name of the matrix you entered. Hit **ENTER**.

Step 3: Now press X^{-1}.

Step 4: Not hit **ENTER**. The resulting matrix is the inverse of the matrix you entered.

Step 5: If you get an error message **ERR:SINGULAR MAT**, then the matrix has no inverse.

M. <u>To Find the Determinant of a Matrix</u> Example: $\begin{pmatrix} 3 & 2 & 1 \\ 1 & 1 & -1 \\ 4 & 3 & 1 \end{pmatrix}$

Step 1: Enter the matrix you want to find the determinant of. After the matrix is entered, be sure you go back to the home screen.

Step 2: Go to **MATRX** or X^{-1} and arrow over to **MATH**. Select **1:det(** and hit **ENTER**.

Step 3: Go to **MATRX** or X^{-1} and under **NAMES** select the name of the matrix you entered. Hit **ENTER**.

Step 4: Press **)** to close the parentheses. Then hit **ENTER**. The resulting number is the determinant of the matrix you entered.

N. <u>Factorial Notation</u> Example: Find 8!

Step 1: Enter the number first. Enter 8.

Step 2: Go to **MATH**. Use the right arrow key and arrow over to **PRB**.

Step 3: Arrow down and select **4:!**

Step 4: Press **ENTER** and **ENTER** again.

Step 5: The resulting number is the solution. The answer is 40,320. So 8! = 40,320

O. <u>Permutations</u> Example: P(5, 3) or ${}_5P_3$

Step 1: Enter the larger number first. Enter 5.

Step 2: Then go to **MATH**. Use the right arrow key and arrow over to **PRB**.

Step 3: Arrow down and select **2:** ${}_nP_r$ **.** Press **ENTER**.

Step 4: Now enter the smaller number and press **ENTER**. Enter **3** and press **ENTER**.

Step 5: The resulting number is your solution, so P(5, 3) = 60.

P. <u>Combinations</u> Example: C(6, 2) or ${}_6C_2$

Step 1: Enter the larger number first. Enter 6.

Step 2: Then go to **MATH**. Use the right arrow key and arrow over to **PRB**.

Step 3: Arrow down and select **3:** ${}_nC_r$ **.** Press **ENTER**.

Step 4: Now enter the smaller number and press **ENTER**. Enter **2** and press **ENTER**.

Step 5: The resulting number is your solution, so C(6,2) = 15.

Q. <u>Piecewise-Defined Functions</u> Example: $\begin{Bmatrix} 2x+3.....if\,(x<-2) \\ x^2.....if\,(x>-2) \end{Bmatrix}$

Step 1: Go to **Y=**. Let Y_1 = 2x + 3 and $Y_2 = x^2$.

Step 2: Under Y_1 = enter (2x + 3)/(x < -2) and enter (x^2)/(x > -2) in Y_2.

Step 3: Before you graph the function, go to **MODE** and use the blue down arrow key to go to the line that reads **Connected Dot**. Use the blue right arrow key to highlight **Dot** and hit **ENTER**.

Note: Piecewise functions can also be entered as one equation.

Step 1: Go to **Y=** and under Y_1 enter (2x + 3)(x < - 2) + (x^2)(x > -2)

Step 2: Follow steps 3 and 4 above to graph.

R. <u>System of Linear Equations</u> Example: $\begin{Bmatrix} 2x+3y=5 \\ 5x-2y=3 \end{Bmatrix}$

Step 1: Solve each equation for "y", if necessary.

Step 2: Go to **Y=**. Enter one equation under Y_1 and the other equation under Y_2.

Step 3: Now **GRAPH**.

Step 4: The solution to the system of equations will be the point where the two lines intersect. To find this point of intersection, go to **2nd TRACE** and select **#5: intersect**. Then hit **ENTER**. The calculator asks for the first curve. Use the arrow keys to move the cursor so it is on one of the lines (it does not matter which

one). Then hit **ENTER**. The cursor should jump to the other line. If it does not, use the arrow keys to move it to the other line. Then hit **ENTER**. Hit **ENTER** again for the guess.

Step 5: The point of intersection is x = 1 and y = 1. This is the solution to the system of equations.

R. **<u>System of Inequalities</u>** Example: $\left\{\begin{matrix} y \geq x-2 \\ y \leq 2x+1 \end{matrix}\right\}$

Step 1: Solve each inequality for "y", if necessary.

Step 2: Go to **Y=**. Enter one inequality under Y_1 and the other inequality under Y_2.

Step 3: Determine where each inequality will be shaded (which half-plane) – above or below the graph of the line.

$y \geq x-2$ will be shaded above the graph of the line y = x – 2.
$y \leq 2x+1$ will be shaded below the graph of the line y = 2x + 1.

Step 4: Press the blue up and down arrow keys to move the cursor to the correct function. Using the blue left arrow key, move the cursor to the left of Y_1 by pressing the left arrow key twice. This puts the cursor in the graph style icon column.

Press **ENTER** repeatedly to move through the graph styles. You want the graph style that looks like a triangle in the upper right corner. Then press the blue down arrow key to move to the next function.

Step 5: If the cursor is not to the left of Y_2, follow the above steps to move the cursor. Press **ENTER** repeatedly to move through the graph styles. You want the graph style that looks like a triangle in the lower left corner.

Step 6: Now **GRAPH**. The solution to the system of inequalities is the region where the shaded areas overlap.

TAKS Application Problems

1. If (x, -3.2) is a solution to the equation 4x = 5y – 17, what is the value of x?

A. 0.84

B. 0.25

C. -5.96

D. -8.25

2. The table shows various values for x and y.

X	Y
-6	23
-2	11
7	-16
11	-28

Which equation best describes the relationship between x and y?

A. y = -3x + 5

B. y = -5x – 7

C. y = -x + 17

D. y = 3x + 41

3. Which of the following ordered pairs is the x-intercept or the y-intercept of the function 2x – y = 8?

A. (8, 0)

B. (0, 4)

C. (4, 0)

D. (0, 8)

4. In many parades, flowers are used to decorate the floats. The table below shows the number of flowers used in each row of a parade float.

Row Number r	Number of Flowers n
1	54
2	58
3	62
4	66

Which equation best describes these data?

A. n = 2r + 52

B. n = r + 54

C. n = 4r + 50

D. n = 4r + 54

5. The table below shows three ordered pairs that satisfy an equation.

X	Y
-1	3
3	1
5	0

When x = 0 in this equation, what is the value of y?

A. 5

B. 3.5

C. 2.5

D. 2

6. The quadratic equation $x^2 - 2x - 7 = 0$ has solutions $x = 1 + 2\sqrt{2}$ and $x = 1 - 2\sqrt{2}$. What can be concluded about the graph of the function f(x) = $x^2 - 2x - 7$.

A. The graph of f(x) does not cross the x-axis.

B. The graph of f(x) crosses the x-axis once.

C. The graph of f(x) crosses the x-axis twice.

D. The graph of f(x) crosses the x-axis more than twice.

7. How many points lie on both the graph of y = 3x + 1 and the graph of y = -3x + 2?

A. 0

B. 1

C. 2

D. 3

8. Which of the following represents a linear function?

A. $y = \frac{2}{x} + 1$

B. $y = 2x^2 + 1$

C. $y = \frac{1}{2}x + 1$

D. $y = x^2$

Resources Used

Asp, G, Dowsey, J, Stacey, K, & Tynan, D. (2004). Exploration with a Graphing Calculator. Emeryville, CA: Key Curriculum Press.

www.tea.state.tx.us

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