

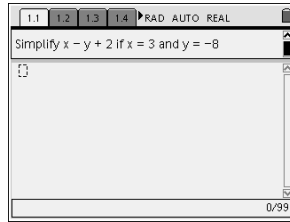
Name: _____

Date: _____

In this activity you are going to explore some of the functions of the new handheld TI-Nspire™ calculator.

Open up the Intro-proof.tns file by pressing the **C** key. Select 6:MY DOCUMENTS, scroll to the file, and press

▪. Figure 1 shows what the Intro-proof.tns file looks like when it is open on your TI-Nspire™ handheld.



Initial Problem: Old Method

1. Read the opening screen press / **e** to move to the calculator section of the screen. Simplify the expression.

Simplified expression = _____

Q1: Could you do this without the calculator? Can you just jump to the answer without showing work?

Explain. _____

Problem #1: A New View

2. Press / **C** to get to the next page of problem one (1.2).
3. You are now looking at a proof format of the evaluation process. It shows every step of the simplification process – your brain on algebra.

Q2: How does this method differ from the old method? What are the benefits? Explain. _____

4. Work through pages 1.3, 1.4, 1.5, 1.6, and 1.7. Follow the directions on the pages. Use your notes or your textbook if you need help with naming the properties.

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Problem #2: An Extension

5. Navigate to problem 2.
6. Use the calculator tool in the bottom of the split screen to locate values of a and b that answer the question. Locate 3 distinct values of a and b that satisfy the conditions.

Pair One a = _____ b = _____

Pair Two a = _____ b = _____

Pair Three a = _____ b = _____

7. Use the above information to help you answer the question on 2.2.

Problem #3: Geometric Connection

8. Navigate to problem #3.
9. Press **b**, 1: Tools, and 5: Text.
10. Move the arrow tool over to one of the empty sides and **a**. Enter the value of the side.
11. Repeat for the next side.
12. **d** to stop the text tool.

Q3: How would you calculate the perimeter of the rectangle? What expression would you set up to calculate the area of the rectangle? _____

13. Use the next screen to show all of the steps necessary to calculate the perimeter of the rectangle.

Area = _____

Perimeter = _____

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Problem #4: Rules, Rules, Rules

14. Navigate to problem #4.

15. You are now viewing the rectangle problem using a spreadsheet.

Q4: What do the columns represent? _____

Q5: What are the rules for columns B and C? Explain what they represent. _____

Q6: Do all of the values make sense? Explain why or why not. _____

16. If any of the data values make no sense, move to a cell on the row, press \blacktriangleleft and \cdot to delete the values.

17. To add data, go to the next empty cell in column A and enter an x value. Press \cdot .

18. Using the Fill down function...

- ✓ Move up using the NavPad cursor control until A1 is boxed in.
- ✓ Press the \mathbf{g} at the same time. This will highlight the first two cells in the A column.
- ✓ Press \mathbf{b} 3: Data and 3: Fill Down
- ✓ Move down using the NavPad until the highlighted border is in cell A10.
- ✓ Press the \cdot to fill the column.

Columns B and C should automatically fill in since formulas have been used.

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Problem #4: Getting a Visual

19. Press / and the $\text{\textcircled{C}}$ on the NavPad to move to the next page of problem 4.

20. Press **b**, 3: GRAPH TYPE, and 3: SCATTER PLOT.

21. Press \blacksquare to open the x field and choose your x variable using the NavPad and \blacksquare . Do the same for the y variable. You will need to choose the perimeter variable here.

22. To get a better view press **b**, 4: WINDOW, and 9: ZOOM-STAT.

Q7: Mathematically and in context, complete the sentence. As the variable x increases the ... _____

Q8: Explain why this relationship is reasonable to expect. _____

23. Use the $\text{\textcircled{`}}$ to move to S2. Plot the x value versus the area.

Q9: Mathematically and in context, explain the relationship. _____

Q10: Compare and contrast the area and the perimeter of the rectangle. _____

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Screen Shots

1.1 1.2 1.3 1.4 RAD AUTO REAL

Simplify $x - y + 2$ if $x = 3$ and $y = -8$

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0/99

Statements	Reasons
a. $x - y + 2$; if $x = 3$ and $y = -8$	a. original
b. $3 - (-8) + 2$	b. substitution
c. $3 + 8 + 2$	c. $(-) * (-) = +$
d. $11 + 2$	d. addition, $l \rightarrow r$
e. 13	e. addition

1.1 1.2 1.3 1.4 RAD AUTO REAL

Statements	Reasons
a. $21 - x + 2(5 + x)$ $x = -2$	a. original
b. $21 - 2 + 2(5 - 2)$	b. substitution
c. $19 + 2(3)$	c. subtraction
d. $21 * 3$	d. addition

Locate and fix the error.

1.1 1.2 1.3 1.4 RAD AUTO REAL

Statements	Reasons
a. $x + y - z + 12.9x = 3.6$, $y = 6.6$, $z = -11$	a. original
b.	b.

1.2 1.3 1.4 1.5 RAD AUTO REAL

Statements	Reasons
a. $21 - x + 2(5 + x)$	a. original
b. $21 - x + 10 + 2x$	b.
c. $21 + 10 - x + 2x$	c. like terms
d. $31 + x(-1 + 2)$	d. distributive
e. $31 + x(1)$	e.

1.3 1.4 1.5 1.6 RAD AUTO REAL

Statements	Reasons
a. $6r + 2(r + 4)$	a. original
b. $6r + 2r + 8$	b.
c. $r(6 + 2) + 8$	c.
d. $r(8) + 8$	d. addition
e. $8r + 8$	e.

Complete the proof. Fill in the missing reasons. Fill in the missing reasons.

1.4 1.5 1.6 1.7 RAD AUTO REAL

Statements	Reasons
a. $-2 * (C * (-0.5))$	a. original
b. $(C * (-0.5)) * (-2)$	b.
c. $C * (-0.5 * -2)$	c.
d. $C * (1)$	d.
e. $1C$	e.

1.5 1.6 1.7 2.1 RAD AUTO REAL

What values of a and b would make $a - b$ negative?

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1.6 1.7 2.1 2.2 RAD AUTO REAL

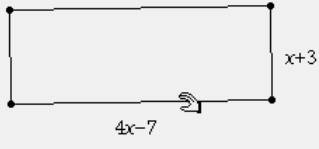
Question

If the value of $a - b$ is negative, which of the following must be true?

a. $a = b$ b. $a > b$
c. $a = 0$ d. $a < b$
e. $b = 0$

Answer ⌵

1.7 2.1 2.2 3.1 RAD AUTO REAL



The above figure is a rectangle.

2.1 2.2 3.1 3.2 RAD AUTO REAL

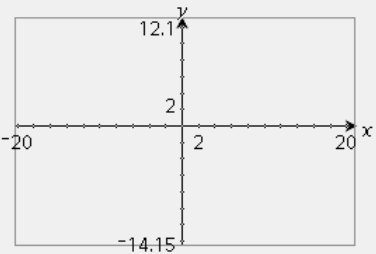
Statements	Reasons

2.2 3.1 3.2 4.1 RAD AUTO REAL

A	x	B area	C perimeter	D
		$= (4 * x - 7) * (x + 5)$	$= 10 * x - 4$	
1	0	-35	-4	
2	1	-18	6	
3	2	7	16	
4				
5				

A7 |

3.1 3.2 4.1 4.2 RAD AUTO REAL



$f(x) =$