TI-Nspire Expanding Instruction Card

Home I:Calculator 2:Graphs & 3:Lists & Sp I:Calculator 2:Graphs & 3:Lists & Sp A:Notes 5:Data & Sta <u>6:New Doc</u> 7:My Docu 8:System Info 9:Hints Create a new document. You will be asked to save and close the currently open document.	Turn the calculator on. () Press (f)(6)to open a new document
1.1 RAD AUTO REAL 1:Add Calculator 2:Add Graphs & Geometry 3:Add Lists & Spreadsheet 4:Add Notes 5:Add Data & Statistics	Select 1:Add Calculator . (If you are asked if you wish to save a previous document, click on "No").
f* 1: Tools TO REAL \$*5 2: Number 1: Solve \$*5 2: Algebra 1: Solve \$*4 3: Algebra 1: Solve \$*4 5: Calculus 2: Factor \$*6 6: Probability 3: Expand \$\$\vee 7: Statistics 4: Zeros \$\$: Numerical Solve 5: Numerical Solve \$\$: 9: Functions & Program 6: Polynomial Tools > 7: fraction Tools > 7: Fraction Tools > 8: Trigonometry > 9: Complex > A: Extract B: Finance Solver	Press (menu) (4) (3) to access the Expand command
1.1 RAD AUTO REAL expand(x ² +3x+2)	Type in the expression you wish to expand between the brackets. Press (
1.1 RAD AUTO REAL expand(x²+3·x+2) x²+3·x+2	On the right side of the screen is the expanded form of the expression.





Use your TI-Nspire to expand the following. Refer to your TI-Nspire instructional card on expanding.

(When you see the symbol \pm , circle either + or -.)

$$(x+2)(x+1) = x^{2} \pm x \pm x + x^{2}$$

$$(x+3)(x+5) = x^{2} \pm x \pm x + x^{2}$$

$$(x+4)(x+7) = x^{2} \pm x \pm x + x^{2}$$

$$(x+2)(x+3) = x^{2} \pm x \pm x + x^{2}$$

$$(x+5)(x+6) = x^{2} \pm x \pm x + x^{2}$$

$$(x+6)(x+3) = x^{2} \pm x \pm x + x^{2}$$

$$(x+7)(x+2) = x^{2} \pm x \pm x^{2}$$

Part 2:

What do you notice about the numbers in the 's compared to the numbers in the brackets?









$$(x+8)(x+4) = x^{2} \pm x \pm x$$

 $(x+7)(x+9) = x^{2} \pm x \pm x$
 $(x+10)(x+5) = x^{2} \pm x \pm x$

B) Now use your TI-Nspire calculators to check your answers above. If you were correct, go to C. If not go back to part 1 and 2 and try to notice something different to help you out.

C) Place integers of your choice in the blanks and fill in each box and circle to make the following equations true.

$$(x+)(x+) = x^{2} \pm x \pm x$$

 $(x+)(x+) = x^{2} \pm x \pm x$





Use your TI-Nspire to expand the following. Refer to your TI-Nspire instructional card on expanding.

(When you see the symbol \pm , circle either + or -.)

$$(x-2)(x-1) = x^{2} \pm x \pm x \pm x^{2}$$

$$(x-3)(x-5) = x^{2} \pm x \pm x \pm x^{2}$$

$$(x-4)(x-7) = x^{2} \pm x \pm x \pm x^{2}$$

$$(x-2)(x-3) = x^{2} \pm x \pm x \pm x^{2}$$

$$(x-5)(x-6) = x^{2} \pm x \pm x \pm x^{2}$$

$$(x-6)(x-3) = x^{2} \pm x \pm x \pm x^{2}$$

$$(x-7)(x-2) = x^{2} \pm x \pm x^{2}$$

Part 2:

What do you notice about the numbers in the 's compared to the numbers in the brackets?







<u>Part 3:</u> "Put your guess to the test"!
A) Put your TI-Nspire calculators away. Use what you noticed in part 2 to figure out what values should be in each box and circle.

$$(x-8)(x-4) = x^{2} \pm x \pm x$$

 $(x-7)(x-9) = x^{2} \pm x \pm x$
 $(x-10)(x-5) = x^{2} \pm x \pm x$

B) Now use your TI-Nspire calculators to check your answers above. If you were correct, go to C. If not go back to part 1 and 2 and try to notice something different to help you out.

C) Place integers of your choice in the blanks and fill in each box and circle to make the following equations true.

$$(x-)(x-) = x^{2} \pm x \pm x$$

 $(x-)(x-) = x^{2} \pm x \pm x$

$$(x-s)(x-t) = _ = x^2 \pm _ x \pm \bigcirc$$





Use your TI-Nspire to expand the following. Refer to your TI-Nspire instructional card on expanding.

(When you see the symbol \pm , circle either + or -.)

$$(x-2)(x+1) = x^{2} \pm x \pm x \pm x^{2}$$

$$(x+3)(x-5) = x^{2} \pm x \pm x \pm x^{2}$$

$$(x+4)(x-7) = x^{2} \pm x \pm x \pm x^{2}$$

$$(x-2)(x+3) = x^{2} \pm x \pm x^{2}$$

$$(x+5)(x-6) = x^{2} \pm x \pm x^{2}$$

$$(x+6)(x-3) = x^{2} \pm x \pm x^{2}$$

$$(x-7)(x+2) = x^{2} \pm x \pm x^{2}$$

Part 2:

What do you notice about the numbers in the 's compared to the numbers in the brackets?









$$(x-8)(x+4) = x^{2} \pm x \pm x$$

 $(x+7)(x-9) = x^{2} \pm x \pm x$
 $(x+10)(x-5) = x^{2} \pm x \pm x$

B) Now use your TI-Nspire calculators to check your answers above. If you were correct, go to C. If not go back to part 1 and 2 and try to notice something different to help you out.

C) Place integers of your choice in the blanks and fill in each box and circle to make the following equations true.

$$(x+)(x-) = x^{2} \pm x \pm x$$

 $(x-)(x+) = x^{2} \pm x \pm x$





Use your TI-Nspire to expand the following. Refer to your TI-Nspire instructional card on expanding.

(When you see the symbol \pm , circle either + or -.)

$$(x+2)(x+2) = x^{2} \pm x \pm x \pm x^{2}$$
$$(x+3)(x+3) = x^{2} \pm x \pm x \pm x^{2}$$
$$(x-4)(x-4) = x^{2} \pm x \pm x \pm x^{2}$$
$$(x+7)(x+7) = x^{2} \pm x \pm x \pm x^{2}$$
$$(x+6)(x+6) = x^{2} \pm x \pm x \pm x^{2}$$
$$(x+5)(x+5) = x^{2} \pm x \pm x^{2}$$
$$(x-2)(x-2) = x^{2} \pm x \pm x^{2}$$

Part 2:

What do you notice about the numbers in the 's compared to the numbers in the brackets?









$$(x-3)(x-3) = x^{2} \pm x \pm x$$

 $(x-7)(x-7) = x^{2} \pm x \pm x$
 $(x+10)(x+10) = x^{2} \pm x \pm x$

B) Now use your TI-Nspire calculators to check your answers above. If you were correct, go to C. If not go back to part 1 and 2 and try to notice something different to help you out.

C) Place integers of your choice in the blanks and fill in each box and circle to make the following equations true.

$$(x+)(x+) = x^{2} \pm x \pm x$$

 $(x-)(x-) = x^{2} \pm x \pm x$





Use your TI-Nspire to expand the following. Refer to your TI-Nspire instructional card on expanding.

(When you see the symbol \pm , circle either + or -.)

$$(x-2)(x+2) = x^{2} \pm x^{2} \pm x^{2} \pm x^{2}$$

$$(x+3)(x-3) = x^{2} \pm x^{2} \pm x^{2} \pm x^{2}$$

$$(x+6)(x-6) = x^{2} \pm x^{2} \pm x^{2} \pm x^{2}$$

$$(x-8)(x+8) = x^{2} \pm x^{2} \pm x^{2} \pm x^{2}$$

$$(x+5)(x-5) = x^{2} \pm x^{2} \pm x^{2} \pm x^{2}$$

$$(x+1)(x-1) = x^{2} \pm x^{2} \pm x^{2} \pm x^{2}$$

Part 2:

What do you notice about the numbers in the 's compared to the numbers in the brackets?







Part 3: "Put your guess to the test"!

A) Put your TI-Nspire calculators away. Use what you noticed in part 2 to figure out what values should be in each blank, box and circle.

$$(x-4)(x+4) = x^{2} \pm x \pm x^{2}$$

 $(2x+7)(2x-7) = x^{2} \pm x \pm x^{2}$
 $(x+10)(x-10) = x^{2} \pm x \pm x^{2}$

B) Now use your TI-Nspire calculators to check your answers above. If you were correct, go to C. If not go back to part 1 and 2 and try to notice something different to help you out.

C) Place integers of your choice in the blanks and fill in each box and circle to make the following equations true.

$$(x+)(x-) = x^{2} \pm x \pm x$$

 $(x-)(x+) = x^{2} \pm x \pm x$





Part 1:

Use your TI-Nspire to expand the following. Refer to your TI-Nspire instructional card on expanding.

(When you see the symbol \pm , circle either + or -.)



<u>Part 2:</u>

What do you notice about the numbers in the 's compared to the numbers in the brackets?







Part 3: "Put your guess to the test"!

A) Put your TI-Nspire calculators away. Use what you noticed in part 2 to figure out what values should be in each blank, box and circle.



B) Now use your TI-Nspire calculators to check your answers above. If you were correct, go to C. If not go back to part 1 and 2 and try to notice something different to help you out.

C) Place integers of your choice in the blanks and fill in each blank, box and circle to make the following equations true.



$$a(x-s)(x-t) = ___x^2 \pm __x \pm \bigcirc$$

EXPANDING USING CAS: SUMMARY SHEET

Choose three examples from each presentation and record them in the space provided.

Worksheet 1: (+,+)	Worksheet 2: (-,-)	Worksheet 3: (+,-)	
•	•	•	
•	•	•	
•	•	•	
Rule:			
Worksheet 4: Perfect Square	Worksheet 5: Diff of Squares	Worksheet 6: Multiple Steps	
•			
•	•	•	
•	•	•	
	•	•	
•			
Shortcut:	Shortcut:	Shortcut:	