Day 04 - Abs Value TI-Nspire activity (bad activity - break it up) [Compatibility Mode] - Microsoft Word
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Advanced Algebra
2.6 Absolute Value Functions

Name: Key

TI-Nspire Activity

- Graph the following functions on your TI-Nspire calculator and answer all questions.

1. Graph $y = |x|$ and $y = x$

a) How does an absolute value functions compare to a linear function? What are the similarities and differences?

See calculator snapshot

- The absolute value function $y = |x|$ is a V-shaped graph. It has a vertex and it appears to have slope.
- The linear function $y = x$ is a line. It extends in both directions without end. It has slope and y-intercept. Has no vertex.

2. Graph the following functions:

$y = |x + 3|$
$y = |x - 3|$
$y = |x + 1|$
$y = |x - 1|$

b) Compare the graphs. If $y = |x + h|$, how does the value of h change the graph?

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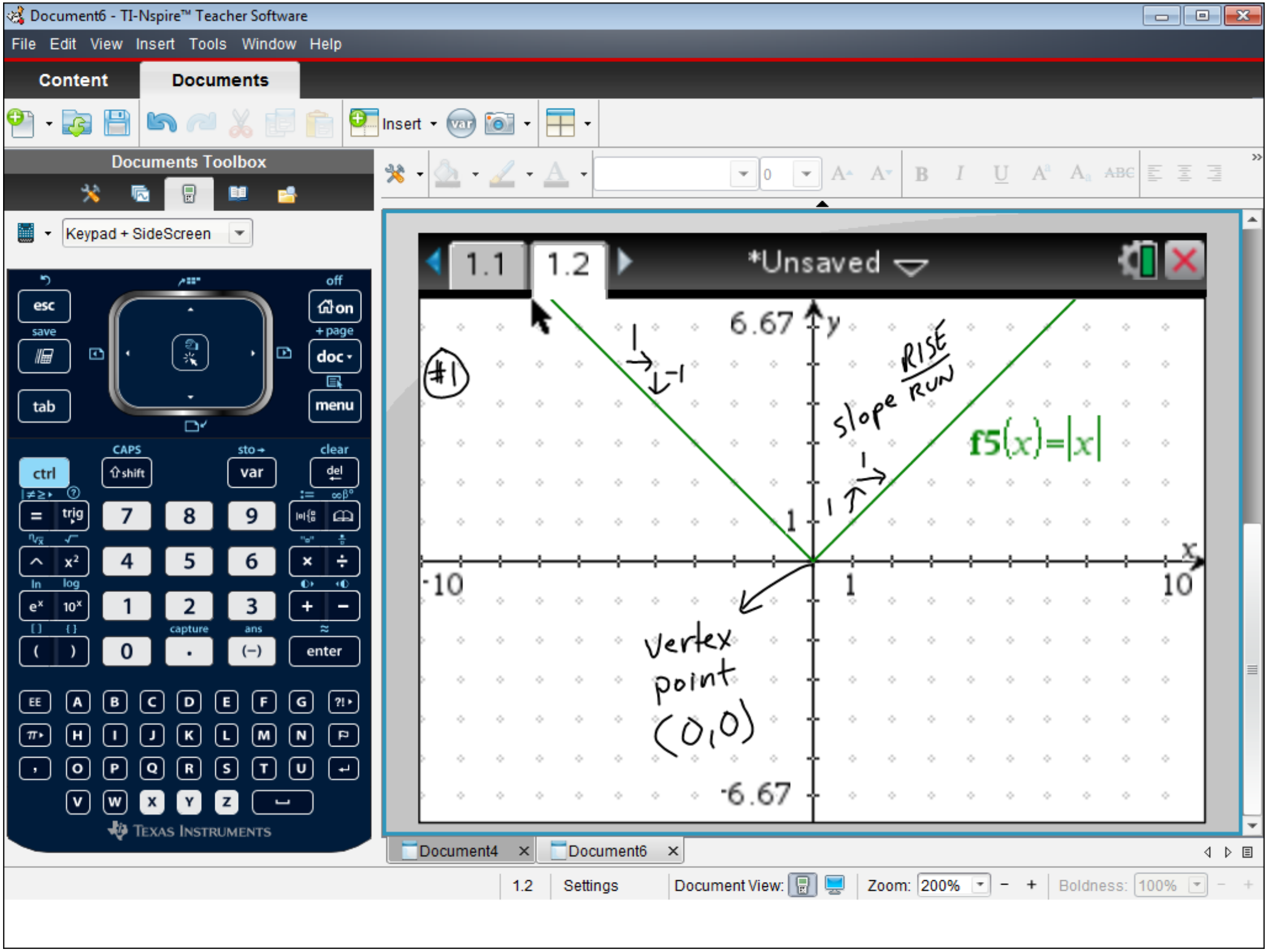
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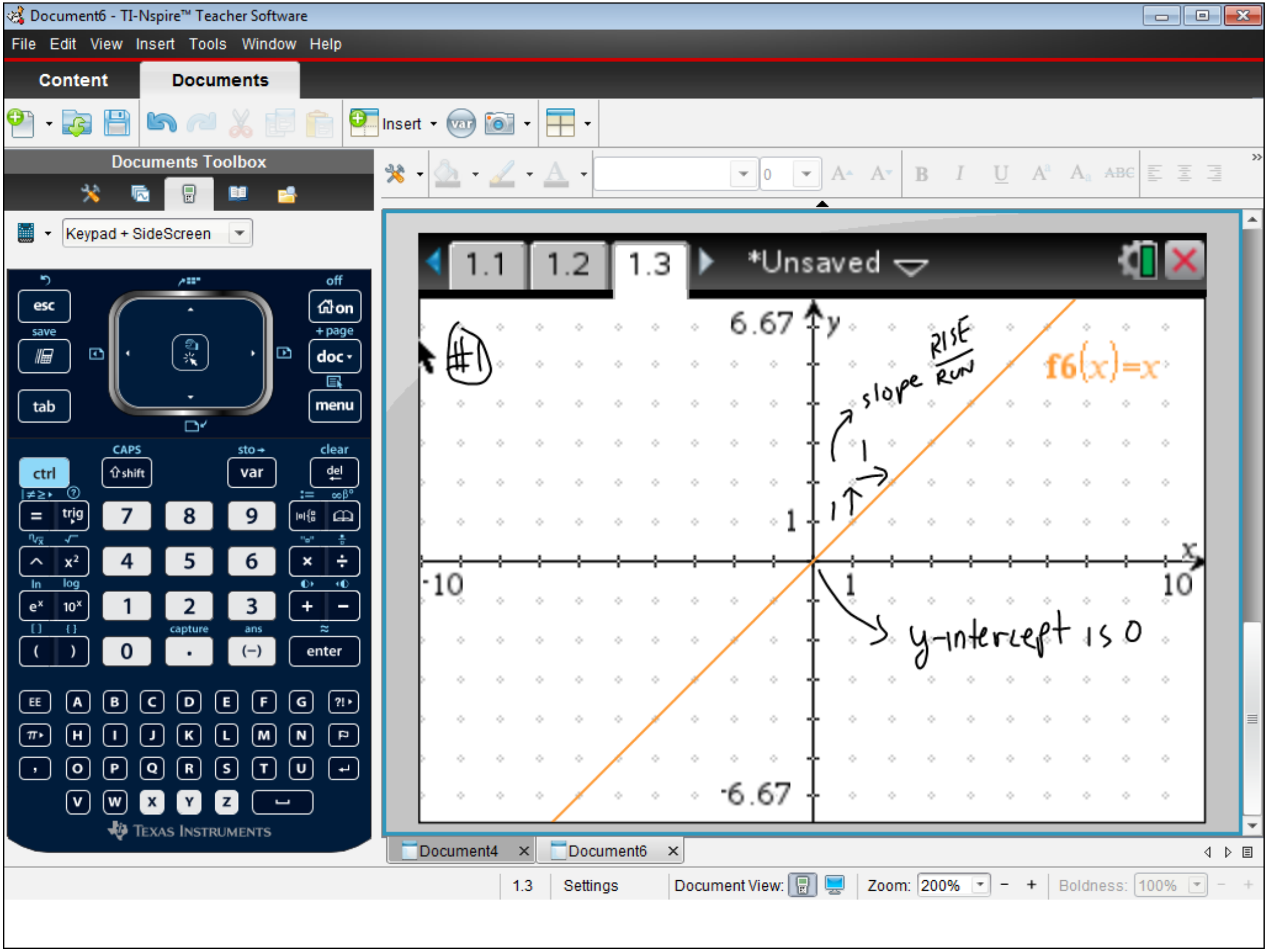
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6.67
y
RISE
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slope
f6(x)=x
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2. Graph the following functions:

$y = |x + 3|$
$y = |x - 3|$
$y = |x + 1|$
$y = |x - 1|$

+3, -3, +1, -1 ... could be any #.

b) Compare the graphs. If $y = |x + h|$, how does the value of h change the graph?

See snapshot

when h is positive ⇒ graph shifts to the left on x-axis.

when h is negative ⇒ graph shifts to the right on x-axis.

3. Graph the following functions:

$y = 2|x|$ $y = 5|x|$ $y = \frac{1}{2}|x|$
$y = -2|x|$ $y = -5|x|$

c) Compare the graphs. If $y = a|x|$, how does the value of a change the graph?

when a is bigger than 1 ⇒ graph narrows in its shape.

when a is between 0 and 1 ⇒ graph widens in its shape.

when a is negative ⇒ graph flips over x-axis (is a reflection).

(narrowing and widening of the graph is also TRUE for negative #s)

*Can you figure out how it works?

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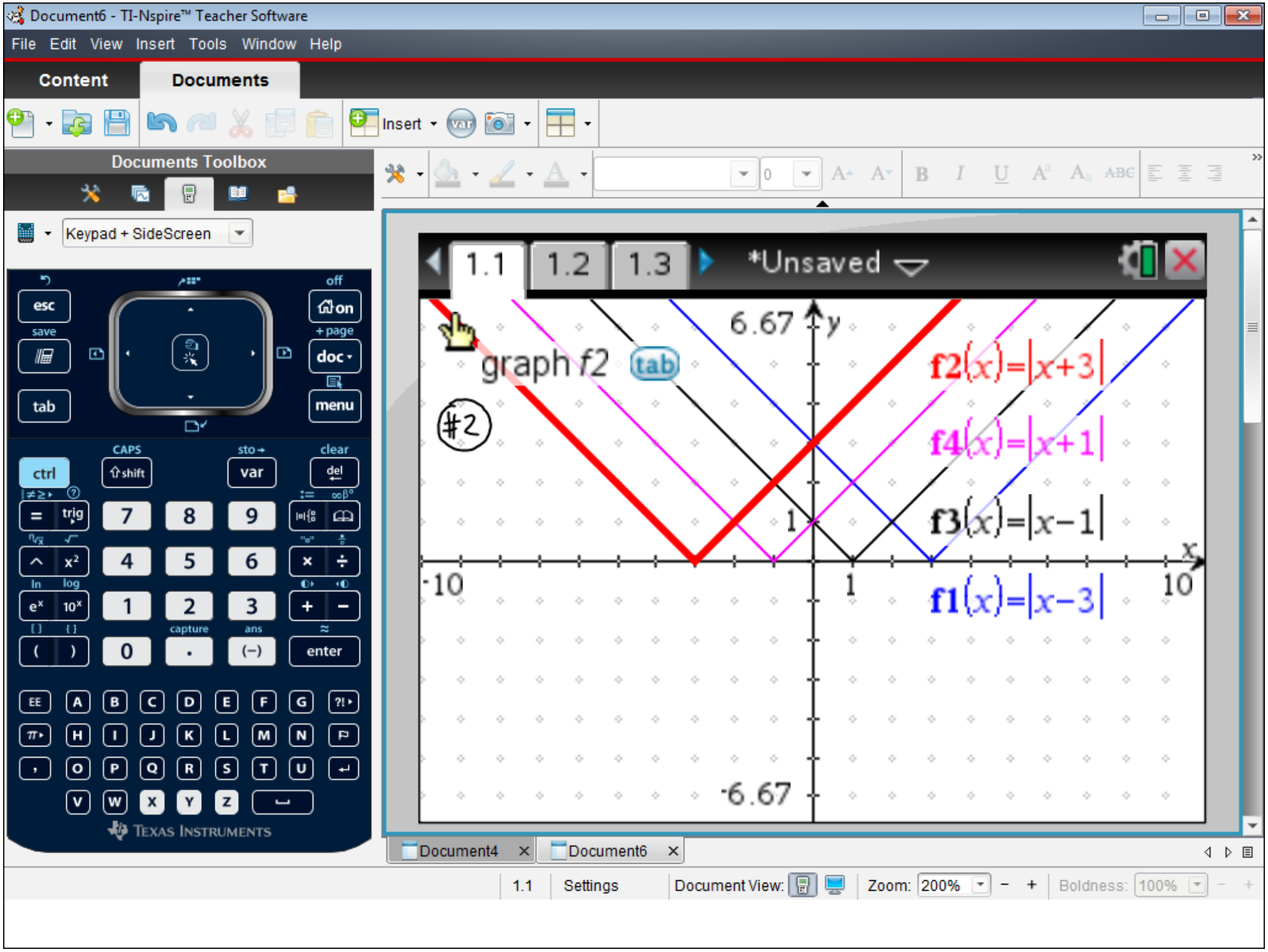
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f2(x)=|x+3|
f4(x)=|x+1|
f3(x)=|x-1|
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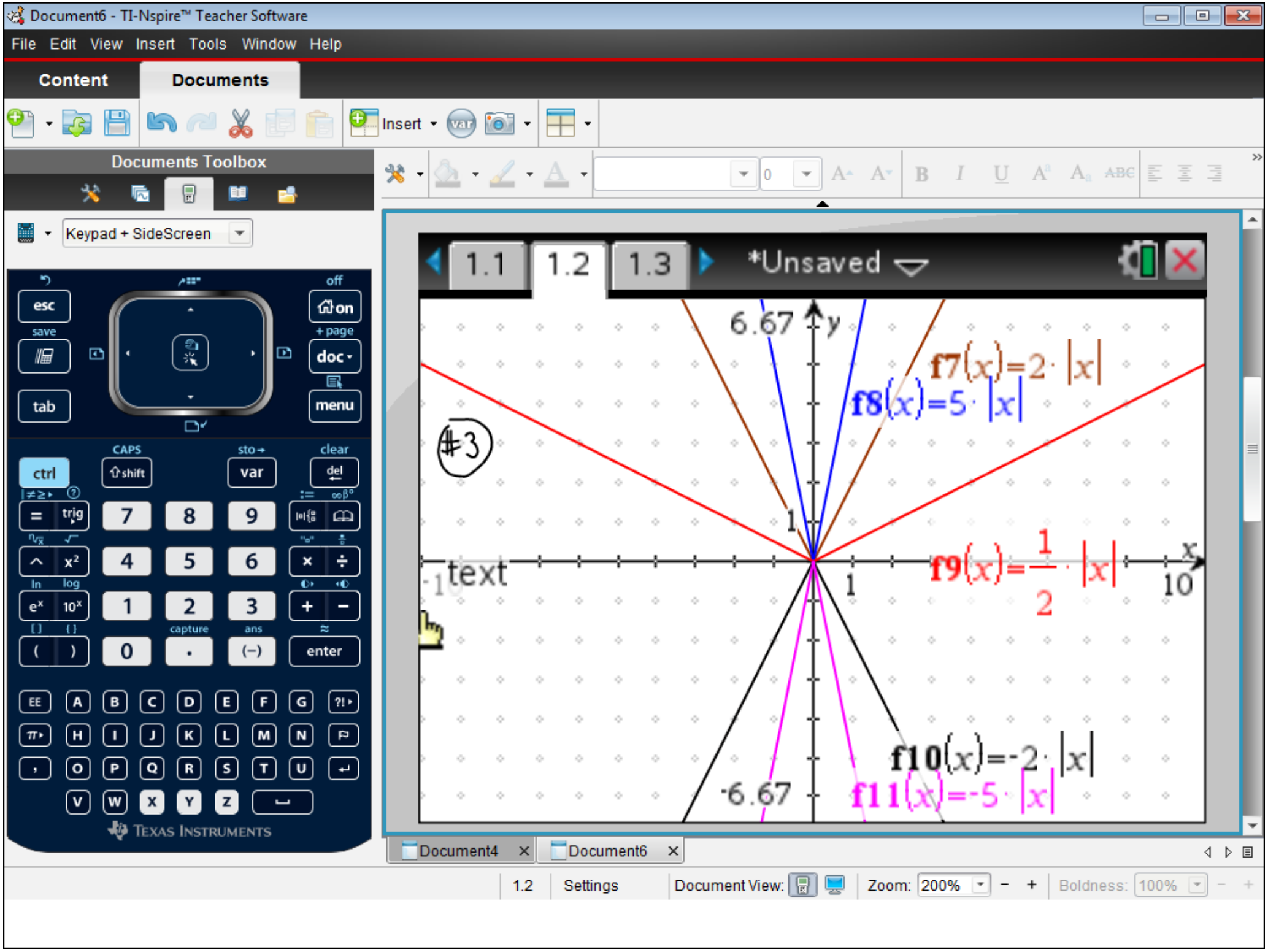
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y
f7(x)=2·|x|
f8(x)=5·|x|
#3
1
text
-1
1
x
10
f9(x)=1/2·|x|
f10(x)=-2·|x|
-6.67
f11(x)=-5·|x|
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