Stuff not in Text

Handling the $5x+10$ in $\sqrt{5x+10}$

or $-5x+10$ in $\sqrt{-5x+10}$

m1 :

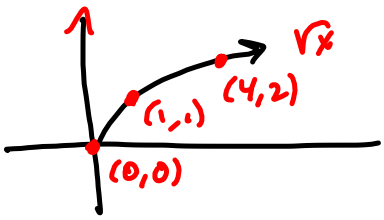
$5x+10$

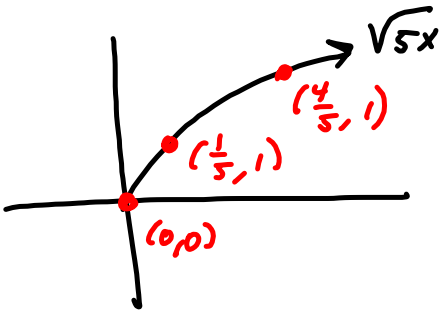
$= 5(x+2)$

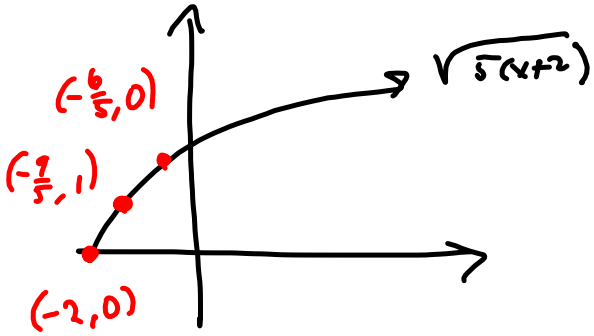
$\sqrt{x} \rightarrow \sqrt{5x} \rightarrow \sqrt{5(x+2)}$

Divide x by 5 (Replaced x by 5x)

LEFT 2 Replaced x by x+2







$\frac{1}{5} - 2 = \frac{1-10}{5} = -\frac{9}{5}$

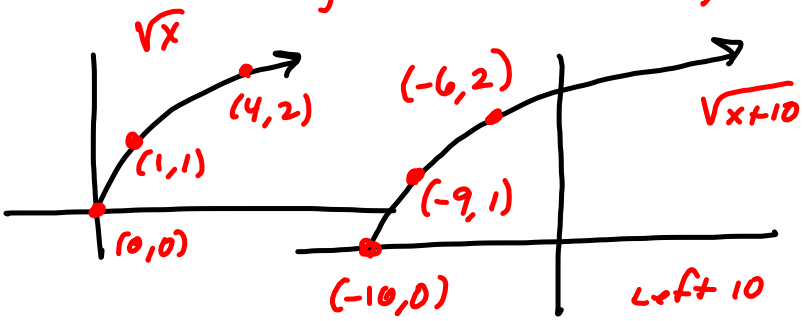
$\frac{4}{5} - 2 = \frac{4-10}{5} = -\frac{6}{5}$

M2 Do shift, then x-shrink

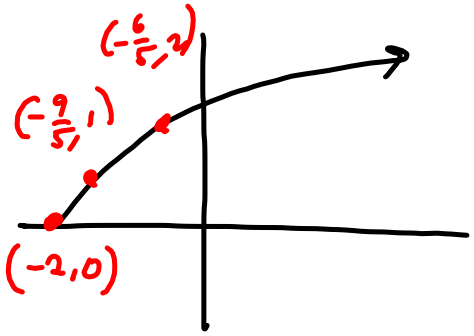
$\sqrt{x} \longrightarrow \sqrt{x+10} \longrightarrow \sqrt{5x+10}$

Left 10 — Replaced x by x+10

Divide x's by 5 — Replaced x by 5x



Now $\sqrt{5x+10}$



Same Picture! (See previous)

Most common mistake

$\sqrt{x} \rightarrow \sqrt{5x} \rightarrow \sqrt{5x+10}$

Divide x by 5 is cool

Left 10 is NOT cool.

$\sin(x)$

$\sin(3x)$

$\sin(\pi x)$

There is no rule for replacing 5x by 5x+10!

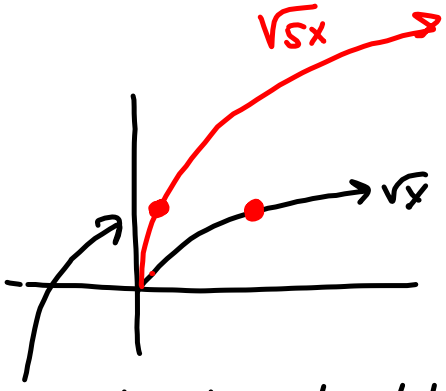
ONLY Rules for replacing x by something

SHOULD Factor out the 5 if you're doing M1: $\sqrt{x} \rightarrow \sqrt{5x} \rightarrow \sqrt{5(x+2)}$ Left 2

AND M2: $\sqrt{x} \rightarrow \sqrt{x+10} \rightarrow \sqrt{5x+10}$

Replace x by x+10 Left 10

Replace x by 5x Shrink horizontally (gets where it's going 5 times faster. It's like shortening the distance.)



Got to this height 5 times sooner or, you could say, in $\frac{1}{5}$ as much time.