

- 1) If I have \$1 invested and I lose 50%, I will have \$.50 remaining ( $\$1 \times .50 = \$.50$ ). In order to get back to my original value of \$1, I will need a 100% increase on my \$.50 balance ( $\$.5 \times 2 = \$1$ ).
- 2) If I have \$1 invested and I lose 10%, I will have \$.90 remaining ( $\$1 \times .9 = \$.90$ ). If I then gain 10% from my value of \$.90, I will only have \$.99 value ( $\$.90 \times 1.1 = \$.99$ ). This is true regardless of whether you experience the gain first or the loss first.
- 3) This one takes a bit longer. Let's say over the course of 5 years, you have 2 portfolios with the following annual returns:

<u>Portfolio A</u>	<u>Portfolio B</u>
6%	30%
6%	-15%
6%	10%
6%	23%
6%	-13%

Average Annual Return:

<u>Portfolio A</u>	<u>Portfolio B</u>
$=((6+6+6+6+6)/5)$	$=((30+(-15)+10+23+(-13))/5)$
$= 30/5$	$= 35/5$
<b>= 6%</b>	<b>= 7%</b>

Now let's see how \$1 invested in each portfolio grows over the five year period:

<u>Portfolio A</u>	<u>Portfolio B</u>
$\$1.00 \times 1.06 = \$1.06$	$\$1.00 \times 1.30 = \$1.30$
$\$1.06 \times 1.06 = \$1.12$	$\$1.30 \times .85 = \$1.10$
$\$1.12 \times 1.06 = \$1.19$	$\$1.10 \times 1.10 = \$1.22$
$\$1.19 \times 1.06 = \$1.26$	$\$1.22 \times 1.23 = \$1.49$
$\$1.26 \times 1.06 = \mathbf{\$1.33}$	$\$1.49 \times .87 = \mathbf{\$1.30}$

Even though Portfolio A had a lower average annual return, it still yielded more money over the time period than Portfolio B!