

Welcome to the continuation of Module 2 of the Elliott Wave Vertical. This is on Impulsive Patterns.

Learning Objects

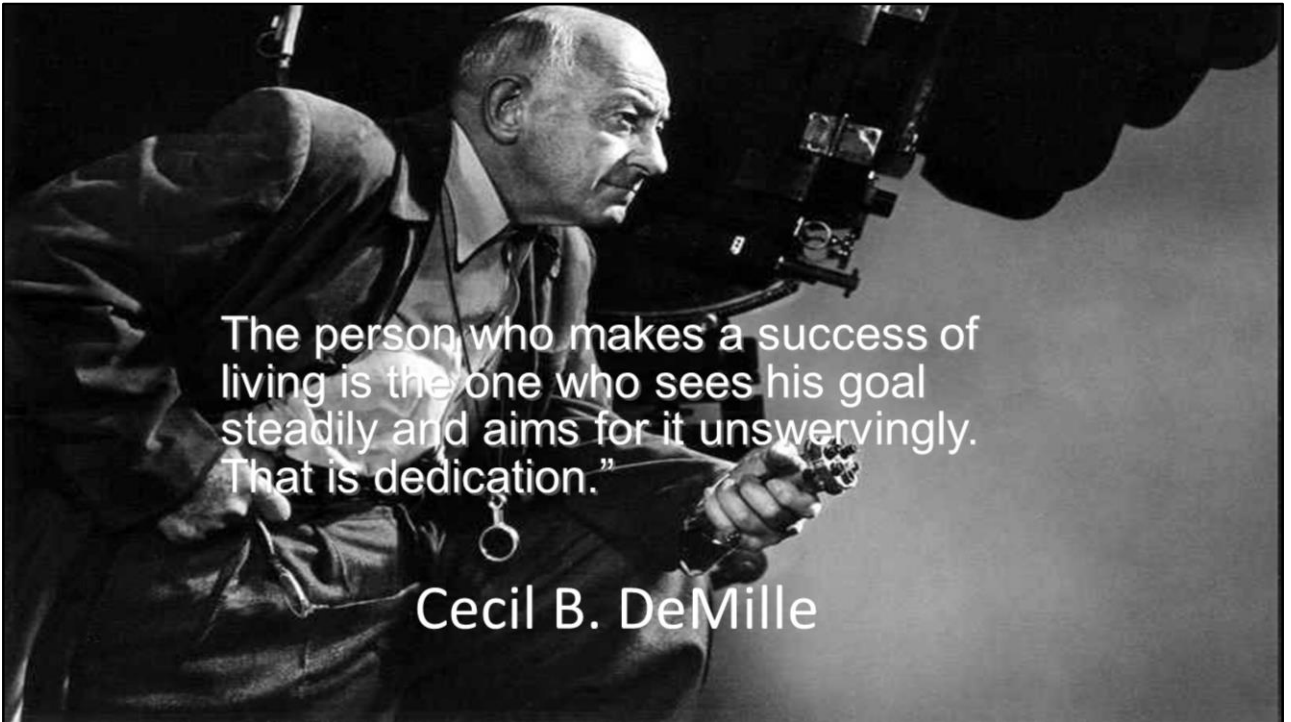
Mathematical Applications

Projections and Targets



In the previous learning object, we learned about:
Impulsive Wave Structure
Impulse and Diagonal Wave Characteristics, and
Rules and Guidelines of Impulsive Waves

In this learning object, we will learn about:
Mathematical Applications, and
Projections and Targets



The person who makes a success of living is the one who sees his goal steadily and aims for it unswervingly. That is dedication.”

Cecil B. DeMille

“The person who makes a success of living is the one who sees his goal steadily and aims for it unswervingly. That is dedication,” Cecil B. DeMille, movie producer.

As technical analysts we learn how to chart and analyze any price action, by placing the price action in the perspective of the general market trend and the daily trend. We know how to recognize important trading levels known as support, resistance and barriers. We have studied chart patterns in mastering the basic skills of looking at the charts. What we are lacking is some form of probability analysis of the potential for such a move as well as its timing.

How would you like to be able to project targets for currency moves in any time frame as well as its timing?

Join the club because Elliott Wave analysis does both. You are about to continue on a journey that will take you years ahead of your trading counterparts in the foreign exchange markets.

MATHEMATICAL APPLICATIONS

The three mathematical applications on Elliott Wave Theory are:

❖ Wave form



❖ Ratio

$$\Phi = \sim 0.618$$

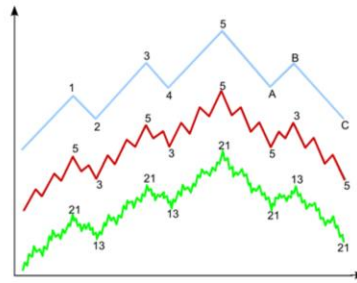
❖ Time



To review, the three mathematical applications on Elliott Wave Theory is comprised of wave form, ratio, and time.

MATHEMATICAL APPLICATIONS

Wave form



1, 2, 3, 4, 5, A, B, C = 8 waves

(i) (ii) (iii) (iv) (v) (a) (b) (c) etc. = 34 waves

$89 + 55 = 144$ waves

Fibonacci numbers are found in Elliott's wave form. How do we use Fibonacci numbers in Elliott Wave analysis? We have discussed that the basic 5-wave impulse and 3-wave corrective always subdivide into Fibonacci numbers. One complete cycle has 8 waves, and subdividing further, the next cycle has 34 waves, followed by 144 waves.



MATHEMATICAL APPLICATIONS

Wave form

Ratio analysis

- The interrelationship of the numbers in the Fibonacci sequence produce three important ratios:
 - + 0.618
 - + 0.382
 - + 0.500 (halfway between 0.618 and 0.382)
- The rule of divine proportion suggests that the market reacts in accordance to this law of nature.

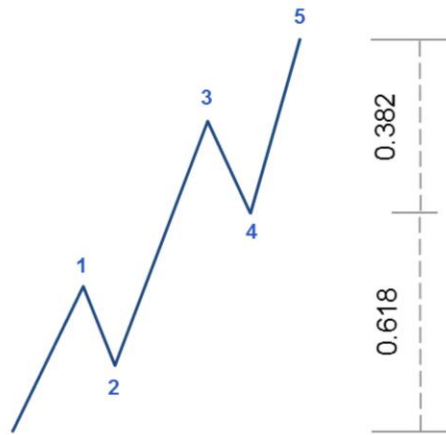


In addition to wave form, Fibonacci ratios are the most important use of the sequence. For example, proportional relationships exist between the different waves. As such, Fibonacci ratios are used to target the ends of moves. These ratios help to determine price objectives in both impulse and corrective waves. Fibonacci ratios are the primary determinant of the extent of price movements in the market, so they are an important adjunct to the Elliott Wave Principle.

MATHEMATICAL APPLICATIONS

Wave form

Ratio analysis



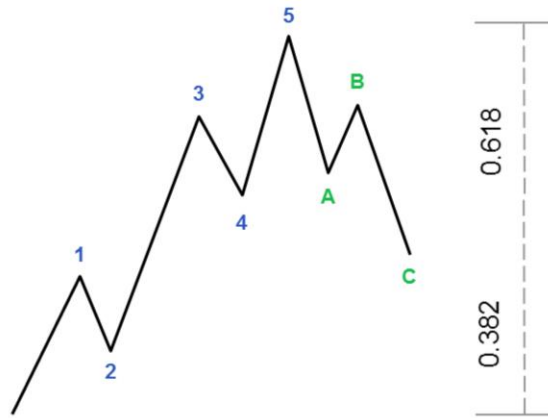
Have you noticed that Elliott Waves move and retrace in proportions? The distance from the start of wave 1 to the bottom of wave 4 is often proportionally 61.8% of the whole 5-wave structure, while wave 5 makes up the remaining 38.2%.



MATHEMATICAL APPLICATIONS

Wave form

Ratio analysis



And look again at the A-B-C retracement. Waves A, B, and C retrace 61.8% of the whole 5-wave movement! Amazing!

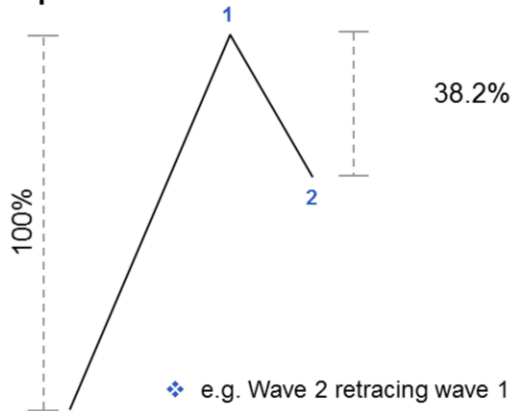


MATHEMATICAL APPLICATIONS

Wave form

Ratio analysis

Use the three Fibonacci ratios to predict the end of a retracement



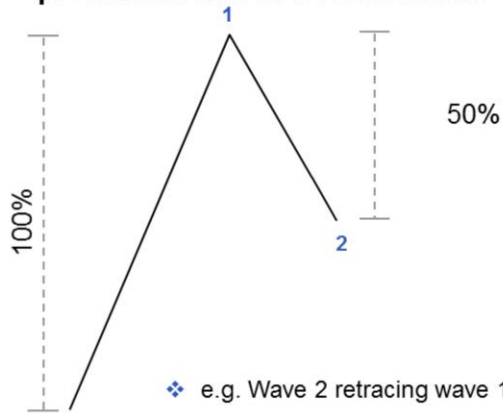
We can also apply Fibonacci ratios to Elliott Wave in order to predict the end of a retracement. This means that at 38.2%, 50%, or 61.8% retracement of wave 1, we can anticipate a possible end to wave 2. The end of wave 2 usually forms at the retracement level of either 38.2...

MATHEMATICAL APPLICATIONS

Wave form

Ratio analysis

Use the three Fibonacci ratios to predict the end of a retracement



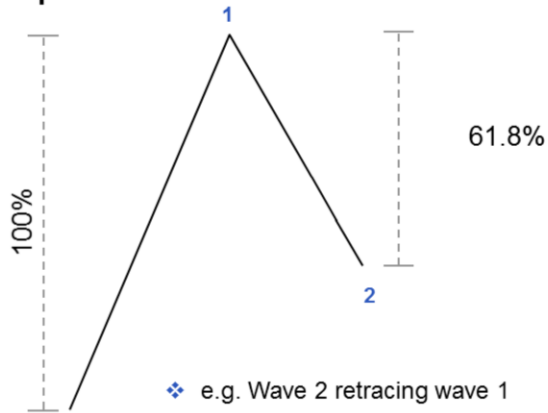
50, or...

MATHEMATICAL APPLICATIONS

Wave form

Ratio analysis

Use the three Fibonacci ratios to predict the end of a retracement



61.8%.

It should be noted that a 76.4% retracement is not uncommon in highly leveraged markets like Forex and commodities.

MATHEMATICAL APPLICATIONS

The Fibonacci Sequence

Common Ratios for Retracements

0.236

0.382

0.5

0.618

0.764

$$0.786 = \sqrt{0.618}$$



MATHEMATICAL APPLICATIONS

Fibonacci provides a good measure of support and resistance:

FIBO Strategies

Buying and selling
on retracements

1. After a move up, use the FIBO tool to calculate potential retracement levels which will find support, before further upward price action.
2. After a down move, use the FIBO tool to calculate potential pullback areas which will provide significant resistance before a subsequent move lower.
3. Use the FIBO tool after every swing move to calculate the retracement.



MATHEMATICAL APPLICATIONS

Fibonacci Retracement Ratios



Source: FXtrek IntelliChart™ Copyright 2001-2012 FXtrek.com, Inc.



MATHEMATICAL APPLICATIONS

Fibonacci Retracement Ratios



Source: FXtrek IntelliChart™ Copyright 2001-2012 FXtrek.com, Inc.



MATHEMATICAL APPLICATIONS

Fibonacci Retracement Ratios



Source: FXtrek IntelliChart™ Copyright 2001-2012 FXtrek.com, Inc.

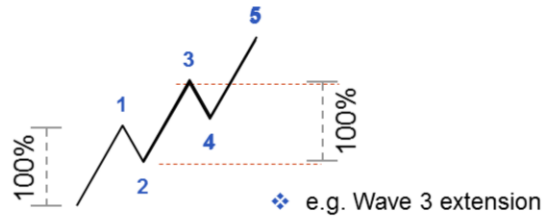


MATHEMATICAL APPLICATIONS

Wave form

Ratio analysis

Use the inverse of the Fibonacci ratios to predict the end of extensions



© 2008 FX Trader's EDGE™ All Rights Reserved



And what about projections on new motive waves? The inverse ratios, 161.8%, 261.8%, and 423.6%, act as barriers where extensions may stop.

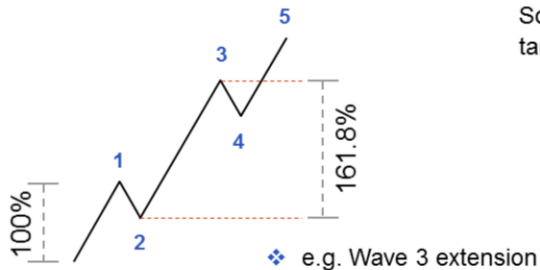
MATHEMATICAL APPLICATIONS

Wave form

Ratio analysis

Use the inverse of the Fibonacci ratios to predict the end of extensions

Once the 100% target is met, forex traders look for the next target, the 161.8%. Sometimes the intermediary target of 138.2% is used.



© 2008 FX Trader's EDGE™ All Rights Reserved



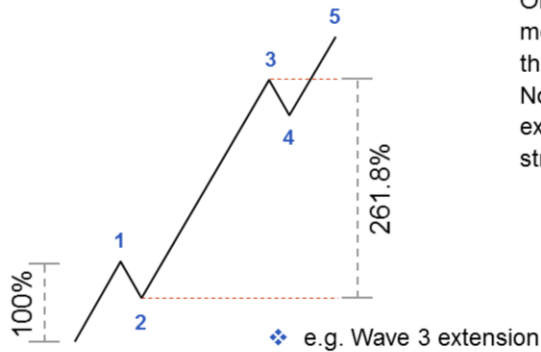
161.8% is common.

MATHEMATICAL APPLICATIONS

Wave form

Ratio analysis

Use the inverse of the Fibonacci ratios to predict the end of extensions



Once the 161.8% target is met, forex traders look for the next target, the 261.8%. Now wave 3 is really getting extended! This is a very strong trend.



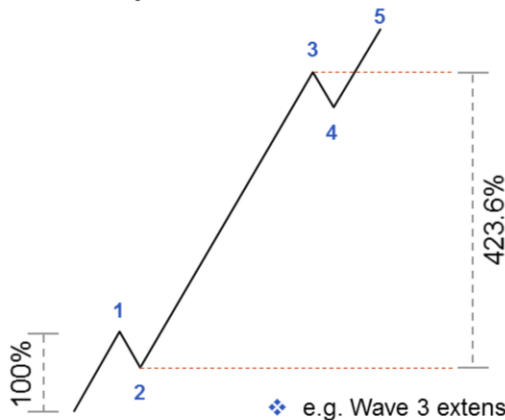
261.8% is the next natural target.

MATHEMATICAL APPLICATIONS

Wave form

Ratio analysis

Use the inverse of the Fibonacci ratios to predict the end of extensions



Once the 261.8% target is met, forex traders look for the next target, the 423.6%. It is rare that the market extends by this magnitude without a major correction. This is a very strong trend move!



And 423.6% is also often observed.

MATHEMATICAL APPLICATIONS

Common Ratios for Wave Extensions

$$1.618 = 1 / 0.618$$

$$2.618 = 1 / 0.382$$

$$4.236 = 1 / 0.236$$

$$1.272 = \sqrt{1.618}$$

$$1.414 = \sqrt{2.00}$$

100% is the first Fibonacci target, followed by subsequent levels.
1.382 is often used as well!



MATHEMATICAL APPLICATIONS

FIBO Strategies

Projecting the moves

Fibonacci provides a good measure of support and resistance:

1. After a move up and subsequent retracement, use the FIBO tool to calculate potential target levels which will find resistance for the next swing move up.
2. After a down move and subsequent retracement, use the FIBO tool to calculate potential target levels which will find support for the next swing move down.



MATHEMATICAL APPLICATIONS

Fibonacci Projection Ratios



Source: FXtrek IntelliChart™ Copyright 2001-2012 FXtrek.com, Inc.



MATHEMATICAL APPLICATIONS

Fibonacci Projection Ratios



Source: FXtrek IntelliChart™ Copyright 2001-2012 FXtrek.com, Inc.



MATHEMATICAL APPLICATIONS

Summary: Retracements and Extensions

23.6%	423.6%
38.2%	261.8%
61.8%	161.8%
78.6%	127.2%

NOTE: 1.414 or 1.382 can also be used as an additional extension!

76.4% equals 1 minus 23.6%, and is used as an alternative to 78.6%.

Once the retracements occur, the extensions can be projected.



MATHEMATICAL APPLICATIONS

Summary: Retracements and Extensions

In a downtrend, look for conservative targets:

38.2% retracement - project a 161.8% extension for profit.

50% retracement - project a 138.2% extension for profit.

61.8% retracement - project a 127.2% projection for profit.

78.6% retracement - project a test at the previous swing low for profit.

The opposite is true for an uptrend.



MATHEMATICAL APPLICATIONS

Wave form

Ratio analysis

Time target



- Reported the following on November 21, 1973

- + 1907 panic low to 1962 panic low = 55 years
- + 1949 major bottom to 1962 panic low = 13 years
- + 1921 recession low to 1942 recession low = 21 years
- + January 1960 top to October 1960 bottom = 34 months

- ❖ All time periods are Fibonacci numbers...
Coincidence?



Finally, a third way that Fibonacci sequences are used is in time targets. Fibonacci time relationships exist and provide the time window for terminations of the moves. However, they are harder to predict and these relationships can always be found after the fact.

MATHEMATICAL APPLICATIONS

Wave form

Ratio analysis

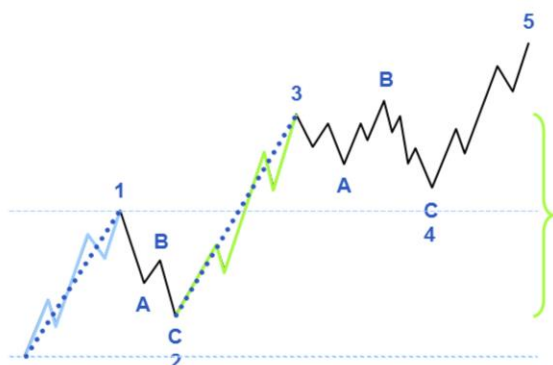
Time target



To predict a time target, count forward from significant tops and bottoms. For example, on a daily chart, count forward the number of trading days from a cycle top or bottom. Future tops or bottoms will occur on Fibonacci days 13, 21, 34, 55, 89 or 144 days into the future.

The ideal situation occurs when wave form, ratio analysis and time targets come together. This is a very powerful combination of targeting tools.

PROJECTIONS AND TARGETS



Wave 3 is a multiple of wave 1.

Wave 3 targets are either:

- ❖ 1 times wave 1
- ❖ 1.618 times wave 1
- ❖ 2.618 times wave 1
- ❖ 4.236 times wave 1

extensions

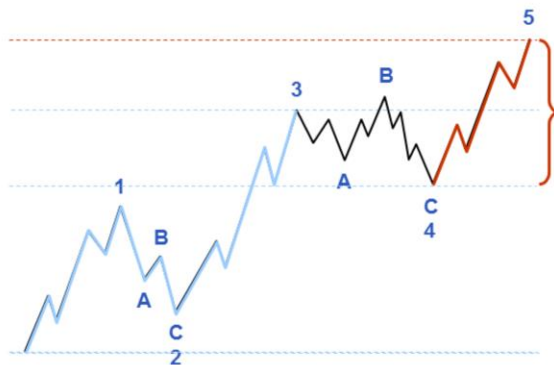


Now we are going to apply Fibonacci Ratio Analysis to calculate impulse wave targets. This is where the Golden Ratio 0.618, its inverse, 1.618, and the ratio found between alternate Fibonacci numbers, 2.618 come into play. We don't have too much to say about wave 1, other than it is used to target wave 3. Wave 3 targets are 1 times the length of wave 1, 1.618 times the length of wave 1, 2.618 times the length of wave 1, and 4.236 times the length of wave 1.

So how do we recognize a wave 3? The easiest way is by its slope which is usually steeper than that of wave 1. Also, reaching a target of 1.618 times wave 1 is normal for wave 3. But once it goes further than that, it is said to be a wave 3 extension. That's when we consider 2.618, and even 4.236, times the length of wave 1 as a target.

The highest volume and the strongest momentum will usually occur in the 3rd wave extension of the 3rd wave. While 3rd waves are not always the longest, once they exceed the length of wave 1, the next target to watch for is 1.618, followed by 2.618 and 4.236.

PROJECTIONS AND TARGETS



Wave 5 is a multiple of wave 1 or the difference between start of wave 1 and end of wave 3.

Wave 5 targets when wave 3 is extended:

- ❖ 1 times wave 1 (equality)
- ❖ 0.618 times wave 1
- ❖ 1.618 times wave 1
- ❖ 0.618 times wave 1 to wave 3

Wave 5 is a multiple of wave 1 or the price difference between the start of wave 1 and end of wave 3. When wave 3 is extended, meaning that it has traveled further than the 1.618 times the length of one, it means that wave 5 will likely not be extended. The likely targets for wave 5 when wave 3 is extended are: 1 times wave 1, or equality with wave 1, where the length of wave 5 equals the length of wave 1; 0.618 times the length of wave 1; 1.618 times the length of wave 1; and 0.618 times the length of wave 1 to wave 3.



PROJECTIONS AND TARGETS



Wave 5 is a multiple of wave 1 or the difference between start of wave 1 and end of wave 3.

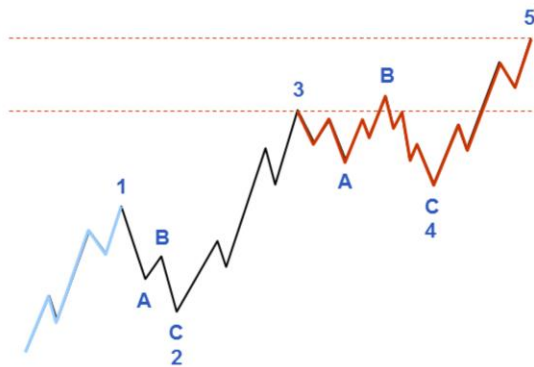
Wave 5 targets when wave 5 is extended:

- ❖ 1 times wave 1 to wave 3
- ❖ 1.618 times wave 1 to wave 3

If wave 5 is extended, it can travel as far as 1 times or 1.618 times the price difference between the start of wave 1 and end of wave 3. Extensions are important in determining impulse wave targets. As you are trading, be aware of the targets, and use these levels as support and resistance that when broken, the next level is targeted.



PROJECTIONS AND TARGETS



Wave 1 is a multiple of the difference between tops of wave 3 and 5.

Wave 1 targets when wave 1 is extended:

- ❖ 1.618 times wave 3 to wave 5



When wave 1 is extended, it often measures out to be 1.618 times the length of waves 3 to 5. But this can only be determined after the fact, of course.

PROJECTIONS AND TARGETS

Ratio	# of Days in Cycle			
X	25	30	35	40
1	25	30	35	40
1.272	32	38	45	51
1.618	40	49	57	65
2.618	65	79	92	105
4.236	106	127	148	169



Another way to use Fibonacci time targets, is through ratio analysis. Take Fibonacci ratios multiplied by the number of days in the up or down cycle to find subsequent cycle highs and lows. For example, assume the current cycle is 30 days. One would project the next cycle using Fibonacci ratios where the next cycle would end close to 30, 38, 49, 79, or 127 days.

The second way to use time targets is to take Fibonacci ratios times the number of days in the up or down cycle to find the subsequent cycle highs and lows. This is a common approach to using Fibonacci ratios to identify turning points in currency markets. As you can see, it requires multiplying the distance in time, or days, between two important cycle extremes by Fibonacci ratios and projecting the results forward in time. The table shows the Fibonacci ratio in the left column and the number of days in the cycle across the top. Of course, if the distance in time or number of days is part of the Fibonacci sequence itself, then multiplying a Fibonacci sequence number by a 1.618 ratio will produce the next number in the Fibonacci sequence anyway. Notice that the Fibonacci extension ratios go from 1 to 1.272 to 1.618 to 2.618 to 4.236.

PROJECTIONS AND TARGETS

Common Ratios for Retracements

- ❖ 0.236
- ❖ 0.382
- ❖ 0.5
- ❖ 0.618

$$0.786 = \sqrt{0.618}$$



Analysts use two additional ratios that we would like to introduce in this learning object. For retracements, we mentioned the most common ratios, which are 0.236, 0.382, 0.5, and 0.618. There is yet another ratio which is used, 0.786, which is the square root of 0.618.

PROJECTIONS AND TARGETS

Common Ratios for Wave Extensions

$$\diamond 1.618 = 1 / 0.618$$

$$\diamond 2.618 = 1 / 0.382$$

$$\diamond 4.236 = 1 / 0.236$$

$$1.272 = \sqrt{1.618}$$



For projecting wave extensions, we looked at the most common, being 1.618, 2.618 and 4.236. Recall these ratios are the inverses of .618, .382, and .236. The last ratio which is used is the square root of 1.618, or 1.272. When you draw your Fibonacci projections and retracements on your charts, you may want to include these additional ratios.

End of Learning Object
Continue on to the Quiz



You have just completed this learning object of Module 2 of the Elliott Wave Vertical
– Impulsive Patterns – please continue on to the quiz.