Frequency a (MHz)	*Frequency b* (MHz)	$1/V_b$ *ñ* $1/V_a$ (seconds / parsec)
600	400	4.32×10^{-4}
800	400	5.84×10^{-4}
800	600	1.51×10^{-4}

In the next section, youíll measure the arrival times of pulses from a pulsar at several different frequencies. Youíll then use these values, together with the relation

$$\mathbf{L = \frac{T_B \text{ ñ } T_A}{(1/V_b \text{ ñ } 1/V_a)}}$$

from the previous section, to work out the distance (*L*).

D. Measuring The Distances Of Pulsars

1. Using the control panel of your radio telescope, go to pulsar **0628-28**. Open the radio receiver window, set the vertical gain for 4 and the horizontal seconds for 4, and tune the receiver to 400 MHz. Then turn on the receiver just to make sure you are getting strong pulses.

2. Stop the receiver now. Letís add a second receiver. **Click** on the **add channel** button and a second receiver display should appear below the first, aligned with it. Set the vertical, horizontal and frequency controls to the same values as the first receiver, a frequency of 400 MHz, 4 for the vertical gain and 4 for the horizontal secs.

3. Set the **Freq Incr**. button on the lower receiver to **10 MHz**, (making it possible to tune the second receiver 10 MHz at time).

4. Turn on the receivers by clicking the mode button located on the top receiver. Both receivers will start recording.

    ï Because they are both receiving the same signal at the same frequency, the two traces should be exactly the same (except, perhaps for a slight random noise in each separate receiver).

How does the arrival times of pulses depend on frequency? Letís find out.

5. Turn on the channels by clicking the mode button in the first channel. While the receivers are running, tune the second receiver to 410 MHz . Do you notice a difference in the arrival times of the higher frequency pulse? Watch for a few seconds.

6. Tune the receiver up to 420 MHz, then 430 MHz. Is the behavior becoming clearer?