

```

1  % produces a sound wave with the given sampleRate and frequency for a time
2  % of durr in seconds.
3  % INPUT:
4  % f: frequency in hz
5  % sampleRate: number of samples per second
6  % durr: number of seconds in result
7  function st = snd(f,sampleRate,durr)
8      % the length of the result
9      samples = floor(durr*sampleRate);
10
11     % what to do if the frequency is 0
12     if f == 0
13         period = 1;
14     else
15         period = (2*pi)/f; % in radians]
16     end
17
18     % converting frequency to rads
19     f_rads = f*2*pi;
20     periods = floor(2*pi*durr/period);
21     periodIndex = floor(period*sampleRate);
22
23     % do some calculations so the wave always ends at the end of its period
24     takeAway = mod(samples,periodIndex);
25     downedSampleCount = samples - takeAway;
26
27     downedRatio = takeAway/samples;
28
29     % time spans from 0 to durr, increments of
30     % 1/sampleRate
31     t = durr*(0:samples)/samples;
32
33     % we could mix 3 different waves at the same frequency
34     st1 = sin(f_rads*t);
35     %st2 = saw(f_rads*t);
36     %st3 = sq(f_rads*t);
37     % st = (st1 + st2 + st3)/3;
38     % any one of the three would work on its own
39     st = st1;
40
41     % fill the remainder with zeros
42     st(downedSampleCount:samples) = 0;

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