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Phys 331
Due Friday the 13th

1.

a) In the code.

b) In the code.

c) In the code.

d)There is initially very little error in checkSolve. However, as n increases (specifically n > 25), the error begins to get larger and larger.

2.

a)

```
[1    t_1    1/2(t_1)^2    ]    [x_0]  =    [x_1]
[1    t_2    1/2(t_2)^2    ]    [v_0]  =    [x_2]
[1    l_3    1/2(l_3)^2    ]    [a]    =    [x_3]
```

b) I made sure that numpy used the same formula that the textbook uses for norm.

c) A delta t value of 5 suggests the best conditioning. This make sense because it allows the most time between the evenly spaced intervals of time.

d) A value of t = 5 suggests the best conditioning. This gives the same values and ratios as the evenly spaced values obtained in part c.

e) Yes, they are the same.

f)

	v0 (difference) |	a (difference) |
Strategy 1 Upper Bound:	0.2515 (+0.0015)	0.2298 (-0.0002)
Strategy 1 Lower Bound:	0.2485 (-0.0015)	0.2302 (+0.0002)
Strategy 2 Upper Bound:	0.2555 (+0.0055)	0.2290 (+0.0010)
Strategy 2 Lower Bound:	0.2445 (-0.0055)	0.2310 (-0.0010)