Math 451

Q's? Caps? lower case? (see video)

Vectorize a loop: $1^2+2^2+3^2+4^2+\cdots+100^2$

```
S = 0
for i = 1:100
   S = S + i.^2;
end
```

```
S = 1:100
S = S.^2
S = sum(S)
```

or

```
S = sum([1:100].^2)
```

$$1^2+2^2+\cdots+n^2 = \frac{n(n+1)(2n+1)}{6}$$

or $S = \frac{100(101)(201)}{6}$

Exam 2

ch 5/6

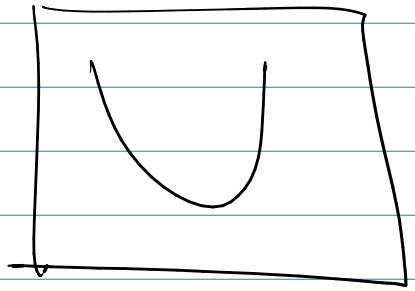
In-class

in-class 8 probs } @ 10pts each
take-home 4 probs }

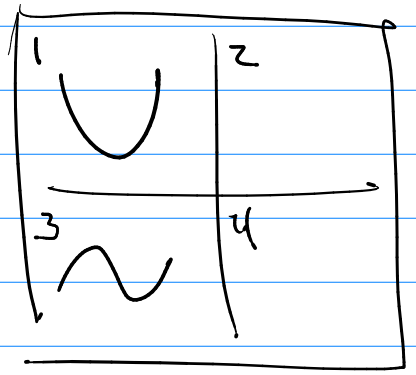
110 pts = 100%

① Code → you are Matlab/Octave (graphics)

ex
```
x = linspace(-2,2,20)';
y = x.^2 - 1';
plot(x,y)
```



ex
```
subplot(2,2,1)
ezplot(@(x) x.^2-1)
subplot(2,2,3)
ezplot(@(x) sin(x))
```



② Code → you are Matlab/Octave (preallocate
vectorization
cell arrays)

eps, etc

S = zeros(1,4) → S = 0 0 0 0

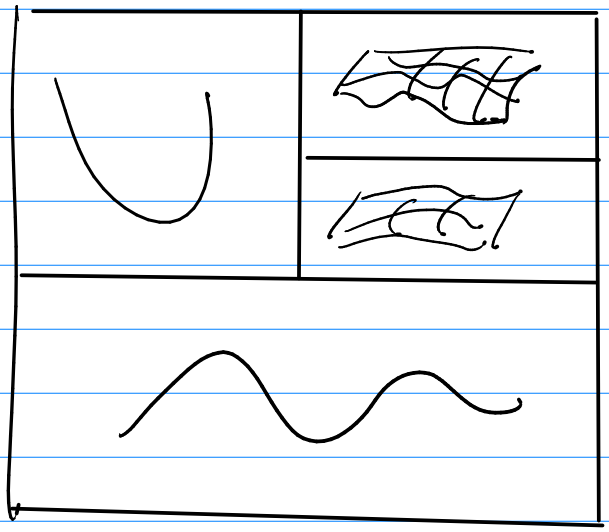
S = S + 1:2:8 → S = 1 3 5 7

S = prod(S) → S = 105

3, 4 } requested plots

Ex plot $f(x) = \sin^2(x)$, $g(x) = x^2 - 1$ on the figure with $f(x)$ above $g(x)$ and do not use ez functions.

Ex



5, 6 } Vectorize (preallocation scripts

loops ⟷ Vectors

7. Gaussian Elimination

→ Given broken code

8. Shuffle

Take-Home 4 probs

1. Code
2. plot requests
3. run your integration code
4. run your gaussian code