

**MAT 331 Fall 2017, Practice Quiz 1**  
**Quiz on Tuesday Sept 12, 2017 (30 minutes)**

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| Name | ID | Score |
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For answers that are real numbers, include all non-zero digits to the left of the decimal place, include the decimal place in a box, and as many digits to the right of the decimal place as will fit in the remaining boxes. Truncate, do not round, e.g., given five boxes for  $\sqrt{7} = 2.64575131106\dots$ , write “2.645”. If a number has no digits to the left of the decimal point, start with the decimal point, e.g., given ten boxes, write  $1/\sqrt{2}$  as “.707106781”. Right justify integer answers, and place blanks (or zeros) in any remaining boxes on the left. For example, given 10 boxes to write  $2^{20}$  either write “0001048576” or “1048576” preceded by three blank boxes.

(1) 

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Find  $\sqrt{2}$ .

(2) 

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Sum  $1/n$  from  $n = 1$  to  $n = 10,000$ .

(3) 

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Use the command `solve` to solve  $x + \sin(x) = e^{-x}$ .

(4) 

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Use the command `root` to find the largest real root of  $p(x) = x^8 - 10x^7 - 2x^3 + 3x^2 + 4$ .

(5) 

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What is the maximum value of  $\exp(\cos(10x)) + x - x^2$  over all real  $x$ ?

(6) 

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Find the first place in the decimal expansion of  $\pi$  that the sequence “2017” occurs. What are the ten digits that follow these? Use the command `y=char(vpa(pi,n))` to create a string on the first  $n$  digits (including the 3 and the “.”). Then use `strfind`.