This assignment contains 3 pages (including this page) and 18 questions. Check to see if any pages are missing.

These pages are indexed to the videos for this course.

Grading
Video 06.010 The Math API

1. What is the API?

2. Why is Math capitalized?

3. What are the two fields in the Math class? Why are they all caps?

4. In practice, what does `static` mean?

5. What are "methods?"

   Comment: (You don't have to answer this.) In the video I mention that Java programmers have to look up methods. One thing I did not mention is that the Java guidelines often mean that the programmer can just guess what the method name will be. Once you understand the pattern of method names, guessing methods is pretty easy.

6. What is the method to calculate an absolute value?

7. What is the return type of abs() (Note that this is a tricky question)

Video 04.020 Random Numbers

8. What are some applications that use random numbers?

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9. What are "pseudorandom" numbers?

10. What method do you call to generate a random number in Java?

11. What is the return type of Math.random()?

12. What is the smallest number that Math.random() can generate?

13. What is the largest number that Math.random() can generate? (This is kind of hard to answer.)

14. Which of the following numbers could be generated by Math.random()?

    - 0.20623453066155573
    - 0.09177047425069951
    - 0.00000000000000000
    - 1.00000000000000000
    - 7.32444222444424243
    - 0.99999999999999999

15. Why is it handy to think of the output of Math.random() as a percentage?

16. The following conditional statement simulates a coin toss. Why is this coin toss not "fair?" Rewrite the conditional statement so that it is has an equal chance of giving heads or tails.

    ```
    String result = (Math.random() < 0.6)?"Heads":"Tails";
    ```

17. Write a Java expression that generates a random number from 0 through 99. *Note that (int)(Math.random()*99) is not the correct answer.*

18. Write a statement that generates a random number from 1 through 100.

    Summary of the Math methods you need to know:

    - **abs** Note that the return type varies based on the type of the argument.