Test Cases for Lab Test on 12 November

Question 1 (**AMICABLE NUMBERS**)

1. 1 4
   Output :
   The numbers **are not** amicable.
2. 1234 620
   Output :
   The numbers **are not** amicable.
3. 220 284
   Output :
   The numbers **are** amicable.
4. 6232 6368
   Output :
   The numbers **are** amicable.
5. 2620 2924
   Output :
   The numbers **are** amicable.

Question 2 (2×2 **MATRIX**)

1. 4 -1 -3 1

   Output :
   Matrix A in the beginning $\{\{4, -1\}, \{-3, 1\}\}$
   Matrix A after **add**$(B) = \{\{5, 0\}, \{0, 5\}\}$
   Matrix A after **multiply**$(B) = \{\{5, 5\}, \{15, 20\}\}$
   Determinant of A finally = 25

2. 1 0 0 1

   Output :
   Matrix A in the beginning : $\{\{1, 0\}, \{0, 1\}\}$
   Matrix A after **add**$(B) = \{\{2, 1\}, \{3, 5\}\}$
   Matrix A after **multiply**$(B) = \{\{5, 6\}, \{18, 23\}\}$
   Determinant of A finally = 7

Question 3 (**Partition of a number with restrictions**)

1. $n = 6,$ $k =1$
   Output :

   ```
   {6}
   {1,5}
   {1,2,3,}
   {2,4}
   ```

2. $n = 13,$ $k =3$
   Output :

   ```
   {13}
   {1,12}
   {1,4,8}
   {2,11}
   {3,10}
   {4,9}
   {5,8}
   ```

3. $n = 100,$ $k =9999$
   Output :

   ```
   {100}
   ```

4. $n = 16,$ $k =2$
   Output : *Note that there are total* **17** *sets. Please check carefully.*

   ```
   {16}
   {1,15}
   {1,3,12}
   {1,3,5,7}
   {1,4,11}
   {1,5,10}
   {1,6,9}
   {2,14}
   {2,4,10}
   {2,5,9}
   {2,6,8}
   {3,13}
   {3,5,8}
   {4,12,}
   {5,11}
   {6,10}
   {7,9}
   ```

Grading Policy

Question 1 For question 1, grading is totally based on the test cases : Each test case carries 2 marks.

Question 2 each test case carries 2 marks. The remaining 11 marks are distributed as follows :

1. 2 mark for attrributes. Please note that there may be various possible ways of implementing the attributes (four variables or 2 arrays of size 2).
2. 2 marks for constructors (one mark per constructor)
3. 1 mark for non-static method **print**
4. 2 marks for non-static method **add**
5. 2 marks for non-static method **multiply**
6. 2 mark for non-static method **findDeterminant**

Question 3 Each test case has 2 marks except the **last test case** which carries 3 marks. The remaining 6 marks are distributed as follows

1. 5 marks for logic
2. 1 mark for coding style