

NAME: _____

TRISECT INSTITUTE**JPR-M1**

DATE: _____

Java Practice

Task 1	Given n as input, print the following pattern.	
Test Cases	Input	Expected Output
	n=2	y1 y1y2
	n=4	y1 y1y2 y1y2y3 y1y2y3y4

Task 2	Given n as input, check which of the numbers from 2 to 5 divide n.	
Test Cases	Input	Expected Output
	n = 15	2: no 3: yes 4: no 5: yes
	n = 22	2: yes 3: no 4: no 5: no

Task 3	Given n as input, print the following pattern	
Test Cases	Input	Expected Output
	n=4	1:A 2:AB 3:ABA 4:ABAB
	n=5	1:A 2:AB 3:ABA 4:ABAB 5:ABABA

Task 4	Given n as input, print the following pattern	
Test Cases	Input	Expected Output
	n=8	MNOMNOMN
	n=4	MNOM
	n=6	MNOMNO

Task 5	Given n as input, print Grade A if n is between 90 and 100, Grade B if it is between 75 and 90, Grade C if it is between 50 and 75 and Grade D otherwise.	
Test Cases	Input	Expected Output
	n=45	Grade D
	n=56	Grade C

	n=78	Grade B
	n=96	Grade A
	n=75	Grade B

Task 6	Given 3 numbers a, b and c as input print the middle number.	
Test Cases	Input	Expected Output
	a=10, b=30, c=20	20
	a=8, b=12, c=14	12
	a=100, b=50, c=200	100
	a=5, b=5, c=5	5
	a=10, b=10, c=20	10
	a=16, b=45, c=16	16

Task 7	Given n as input, print the sum of $3^1 + 3^2 + \dots + 3^n$	
Test Cases	Input	Expected Output
	n=3	39 (because $39 = 3+9+27$)
	n=4	120 (because $120 = 3+9+27+81$)
	n=5	363 (because $363 = 3+9+27+81+243$)

Task 8	Given x and n as input, print the sum of $x^1 + x^2 + \dots + x^n$	
Test Cases	Input	Expected Output
	n=3, x=10	1110 (because $1110 = 10+100+1000$)
	n=4, x=5	780 (because $780 = 5+25+125+625$)
	n=6, x=2	127 (because $127 = 2+4+8+16+32+64$)

Task 9	Given a and b as input, print the follow pattern	
Test Cases	Input	Expected Output
	a=5, b=2	10#15#
	a=5, b=4	10#15#20#25#
	a=7, b=3	14#21#28#
	a=7, b=5	14#21#28#35#42#

Task 10	Given n as input, print the following pattern. Note the first number is always $n*(n-1)$ and the number of terms in the pattern is n-1.	
Test Cases	Input	Expected Output
	n=4	12#24#36#
	n=5	20#40#60#80#
	n=6	30#60#90#120#150#
	n=3	6#12#
	n=2	2#
	n=7	42#84#126#168#210#252#

Task 11	Given n as input, print the following pattern. Note that all the multiples of 3 have been denoted by x.	
Test Cases	Input	Expected Output
	n=4	4 4x 4x2 4x21
	n=8	8 87 87x 87x5 87x54 87x54x 87x54x2 87x54x21

Task 12	Given n as input, print the following pattern.	
Test Cases	Input	Expected Output
	n=5	+1-2+3-4+5=3
	n=2	+1-2=-1
	n=4	+1-2+3-4=-2
	n=1	+1=1

Task 13	Given n as input, print the numbers that divide n and the numbers that do not divide n. Note that the numbers to be checked are from 1 to n.	
Test Cases	Input	Expected Output
	n=9	Divide: 1#3#9# Not Divide: 2#4#5#6#7#8#
	n=4	Divide: 1#2#4# Not Divide: 3#
	n=2	Divide: 1#2# Not Divide:

Task 14	Given two numbers x and y as input, find the HCF of x and y. Note that HCF is the largest number that will divide both x and y. If we run a loop from 1 to the smaller of x and y, we can find the largest number that divides both x and y.	
Test Cases	Input	Expected Output
	x=20, y=50	10
	x=21, y=65	1
	x=102, y=102	102
	x=80, y=40	40
	x=96, y=1	1
	x=80, y=76	4

Task 15	Given n as input, print the following pattern. Note that the number of # keep on increasing by 1.	
Test Cases	Input	Expected Output
	n=3	1#2##3###
	n=4	1#2##3###4####
	n=5	1#2##3###4####5#####

Task 16	Given a 4 digit number n as input, find the sum of its digits. Note that $n\%10$ gives its last digit, whereas $n/10$ removes the last digit. So if $n=2456$, $n\%10$ is 6 and $n/10$ is 245. So, run a for loop from 1 to 4 and in the loop do 2 things – calculate the last digit and then remove the last digit.	
Test Cases	Input	Expected Output
	n=2456	17
	n=1001	2
	n=9999	36
	n=1234	10

Task 17	Given 3 numbers a, b and c as input, print Triangle:Yes if they can be sides of a triangle or else print Triangle:No. Note that three numbers can form a triangle if the sum of any two numbers is always greater than the third number.	
Test Cases	Input	Expected Output
	a=10, b=20, c= 15	Triangle:Yes
	a=10, b=40, c= 15	Triangle:No
	a=8, b=4, c=2	Triangle:No
	a=4, b=12, c=17	Triangle:No

Task 18	Given 3 numbers a, b and c as input, print Right Angled Triangle:Yes if they can be sides of a right angle triangle or else print Right Angled Triangle:No	
Test Cases	Input	Expected Output
	a=10, b=20, c= 15	Right Angled Triangle:No
	a=3, b=4, c= 5	Right Angled Triangle:Yes
	a=13, b=12, c=5	Right Angled Triangle:Yes
	a=8, b=10, c=6	Right Angled Triangle:Yes
	a=7, b=10, c=6	Right Angled Triangle:No