

Quiz #9

Monday, December 11 2017

Duration: 20 min

NAME: _____

Please write clearly and properly.

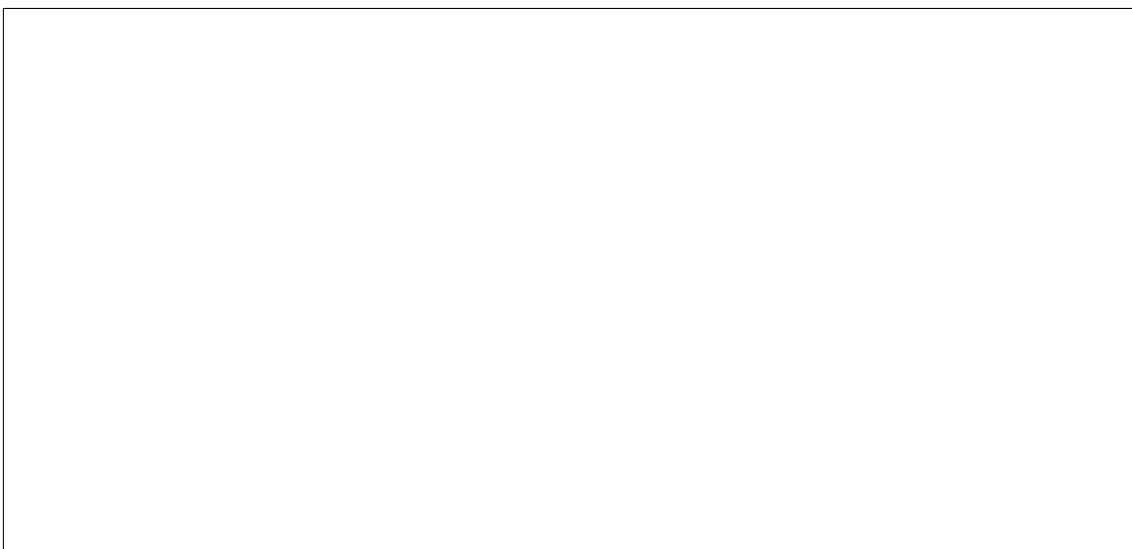
Problem	Grade
1	
2	
3	
Total	

Problem 1 (~ 2 points.).

(1) Draw Pascal's Triangle up to the sixth row.



(2) Expand $(x + 1)^5$ using the binomial theorem.



Problem 2 (~ 2 points.).

Consider the following menu at a restaurant:

Starters:

- Charcuterie
- Cantaloupe

Mains:

- Steak tartare
- Seared Tuna
- Veggie pâté

Desserts:

- Plate of cheeses
- Crème brûlée
- Ice cream
- Chocolate mousse

Let us call *meal* the choice of 1 starter + 1 main + 1 dessert. Show that if each person of a group of 30 people orders a meal from the restaurant, then at least two people of this group will have the same meal.

Explain your answer appropriately: name the principle(s) involved in your answer.

Problem 3 (~ 3 points.).

Consider the numbers $a = 150$ and $b = 360$.

- (1) Write a and b as products of primes.

- (2) Find the greatest common divisor of a and b .

- (3) Find the lowest common multiple of a and b .