

**ĐỀ THI VÒNG CHUNG KẾT HKIMO LỚP 6
NĂM HỌC 2017-2018**

ĐIỂM:

Họ và tên:.....SĐT:.....

Logical Thinking / Tư duy lô-gic

1. Given A and D are two non-zero digits and the 2-digit numbers formed by these two digits have the following properties:
 1. $\overline{DA}$ can be expressed by a product of 2 and $\overline{AD} - 2$;
 2. $\overline{AD}$ is a square number;
 Find the 2-digit number $\overline{AD}$.
Two non-zero digits: Hai chữ số khác 0; 2-digit numbers: Các số có 2 chữ số; Formed: Tạo bởi; Properties: Tính chất; Expressed: Biểu diễn; Product: Tích; Square number: Số chính phương.
2. There are chickens and rabbits in a cage and the number of chickens is twice the number of rabbits. They have 352 legs in total. How many rabbits are there?
Twice: Gấp hai lần; In total: Tổng cộng.
3. The age of Andy is three times that of John now. 12 years later, the age of Andy is two times that of John. How old is Andy now?
Three times: Ba lần; Later: Sau; Two times: Hai lần; Now: Hiện tại.
4. Amy is reading a novel. She read 1 page on the first day, 2 pages on the second day, 3 pages on the third day, etc, until the total pages she read are a multiple of 60. How many pages did she read until then?
Total: Tổng số; Multiple: Bội; Until then: Đến lúc đó.
5. There are 6 pieces of white chopsticks, 8 pieces of yellow chopsticks and 11 pieces of brown chopsticks mixed. If you want to get 4 pairs of chopsticks in the dark, in which 3 pairs of them are of the same color and 1 pair of them is of different color, at least how many piece(s) of chopstick(s) is / are needed to be taken?
Together: Cùng nhau; At least: Ít nhất.

Arithmetic / Tính toán

6. Find the value of $222222222 \div 9$.
Value: Giá trị.
7. Find the value of $\frac{1}{1 \times 2 \times 3} + \frac{1}{2 \times 3 \times 4} + \dots + \frac{1}{7 \times 8 \times 9} + \frac{1}{8 \times 9 \times 10}$.
Value: Giá trị.
8. Find the value of $1 \times 2 + 2 \times 3 + 3 \times 4 + \dots + 20 \times 21$.
Value: Giá trị.
9. Find the value of $144 - 143 - 142 + 141 + 140 - 139 - 138 + 137 + \dots + 4 - 3 - 2 + 1$.
Value: Giá trị.

10. Convert $\frac{38}{99}$ into the decimals.

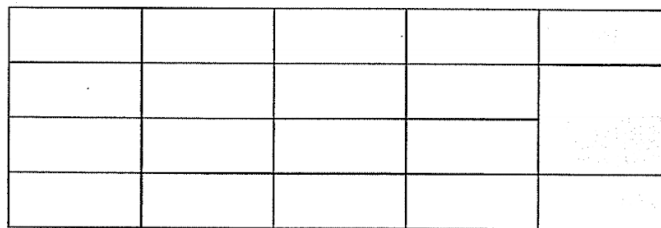
Convert: Đổi; Decimals: Số thập phân.

Number Theory / Lý thuyết số

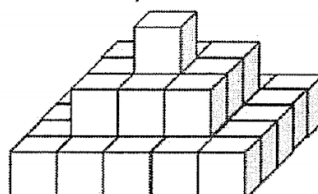
11. If 9-digit number $\overline{2A018901B}$ is divisible by 11, find the value of $B - A$.
9-digit number: Số có 9 chữ số; Divisible: Chia hết; Value: Giá trị.
12. How many simplified fractions with denominator 80 are there?
Simplified fraction: Phân số tối giản dương và nhỏ hơn 1; Denominator: Mẫu số.
13. How many 3-digit number(s) that can be divisible by 7 or 11 but not divisible by 13?
3-digit number(s): Số có 3 chữ số; Divisible by: Chia hết.
14. A 3-digit number has a remainder 2 when divided by 3, has a remainder 1 when divided by 5 and has a remainder 4 when divided by 7. What is such largest 3-digit number?
3-digit number: Số có 3 chữ số; Remainder: Số dư; Divided by: Chia cho; Remainder: Số dư; Largest: Lớn nhất.
15. The sum of 9 consecutive numbers is 126. Find the second largest number.
Sum: Tổng; 9 consecutive numbers: 9 số liên tiếp; Second largest number: Số lớn thứ hai.

Geometry / Hình học

16. How many rectangle(s) is / are there in the figure below?
Rectangle(s): Hình chữ nhật; Figure: Hình vẽ.



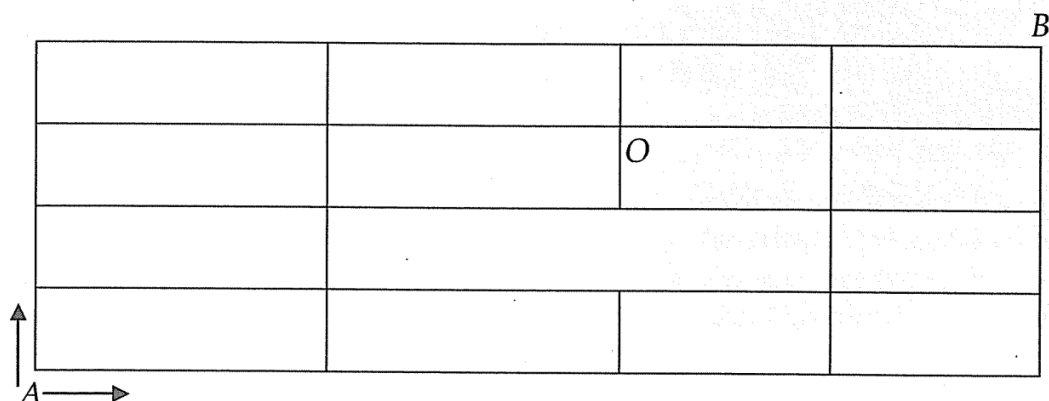
17. A rectangle is cut into 4 equal squares. If the area of each square is 256cm^2 , how many cm at least does the perimeter increase after cutting the rectangle?
Rectangle: Hình chữ nhật; Equal: Bằng nhau; Area: Diện tích; Perimeter: Chu vi; Increase: Tăng lên.
18. Small cubes with side length 1 are combined according to the pattern shown below, if there are 11 layers, find the surface area.
Cubes: Khối lập phương; Side: Cạnh; Length: Độ dài; Combined: Ghép lại; Pattern: Quy luật; Layers: Tầng; Surface Area: Diện tích toàn phần.



19. A square is formed by 722 rectangles that are $1\text{cm} \times 2\text{cm}$. Find the decrease in perimeter in cm.
Square: Hình vuông; Rectangles: Hình chữ nhật; Decrease: Giảm đi; Perimeter: Chu vi.
20. The side length of a square is 18.84cm. If the perimeter of the square is the same as a circle, what is the area of the circle? (Take $\pi = 3.14$)
Side length: Độ dài cạnh; Square: Hình vuông; Perimeter: Chu vi; The same: Bằng nhau; Circle: Hình tròn; Area: Diện tích.

Combinatorics / Tổ hợp

21. A flight of stairs has 11 steps. David can go up for 1 step or 2 steps each time. The 4th step cannot be stepped on as it is destroyed. How many way(s) is / are there for David to go up the stairs?
Way(s): Cách đi.
22. Amy needs 24 days to finish a task. Amy and Paul need 6 days to finish a task if they work together. How many days does Paul need to finish the task by himself?
Together: Cùng nhau.
23. When do the hour hand and the minute hand point in opposite directions between 2pm and 3pm?
Hour hand: Kim giờ; Minute hand: Kim phút; Point: Chỉ; Opposite directions: Hướng đối diện.
24. 3 identical English books and 3 identical Mathematics books are put on a bookshelf. How many ways of arrangement are there?
Identical: Giống nhau; Ways of arrangement: Cách xếp.
25. If Agnes goes from point A to point B, each step can only move up or move right. How many way(s) is / are there if she must pass through the point O?
Move up: Đi lên trên; Move right: Đi sang phải; Pass through: Đi qua.



Question 25

