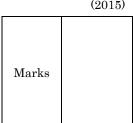
(2015)

MATHEMATICS	Nationality		No.	
		(Please print full name, underlining family name)		
	Name			



Note that all the answers should be written on the answer sheet.

- 1. Fill in the following blanks with the correct numbers.
- (1) When a > 0, then what is the range of x that satisfies the following inequality:

- (2) If $4^{3x-1} 2^{5x-4} = 0$, then x =
- (3) $10^{\log_{10} 5} =$.
- (4) When α and β are the solutions of the quadratic equation $x^2 5x + 3 = 0$, then $\alpha^2 + \beta^2 = \boxed{ }$, $(\alpha - \beta)^2 = \boxed{ }$.
- (5) When $|\vec{a}| = 1$, $|\vec{b}| = 2$, $|\vec{a} \vec{b}| = \sqrt{7}$, then the degree measure of the angle between \overrightarrow{a} and \overrightarrow{b} is $\boxed{}$ °.
- (6) When $\triangle ABC$ is a triangle where $\angle A=30^{\circ}$, then $\sin(\angle B+\angle C)$ is
- (7) How many multiples of 3 are there among integers from 100 to 200? The answer is ① , and the sum of those multiples of 3 is
- (8) When $x^3 + ax^2 + bx + 5$ is divisible by x 1 and has a remainder of 5 when divided by x-2, then $a = \boxed{1}$, $b = \boxed{2}$
- (9) Let $f(x) = |x^2 1|$. Then $f(0) = \boxed{1}$, $\int_0^2 f(x) dx = \boxed{2}$
- (10) Assume that a,b and c are consecutive terms of arithmetic progression (a < b < c). If a + b + c = 24 and abc = 440, then $a = \boxed{\bigcirc}$, $b = \boxed{\bigcirc}$, $c = \boxed{\bigcirc}$.

- 2. On the plane xy, there are four points; O (0,0), A (0,3), B (0,-3), C (4,0). Fill in the following blanks with the correct numbers.
- (1) The equation of the straight line AC is $\boxed{1}$ $x + \boxed{2}$ $y \boxed{3}$ = 0
- (3) When point D is the intersection of bisector of $\angle ABC$ and x-axis, then $OD:DC=\boxed{\textcircled{1}}:\boxed{\textcircled{2}}$ and the coordinates of the inner center of $\triangle ABC$ are $\boxed{\textcircled{3}}$, $\boxed{\textcircled{4}}$.
- 3. The line (a); y = x + k (k is a constant) is tangent to both the parabola (b); $y = x^2 5x + 7$ and the parabola (c); $y = x^2 + 3x 1$.

Point P is the point of tangency of the line (a) and the parabola (b), point Q is the point of tangency of the line (a) and the parabola (c) and point R is the intersection of the parabola (b) and the parabola (c).

Fill in the following blanks with the correct numbers.

- (1) The constant $k = \boxed{}$.
- (2) The x-coordinate of the point P is \bigcirc , the x-coordinate of the point Q is \bigcirc and the x-coordinate of the point R is \bigcirc .
- (3) The area surrounded by the line (a), the parabola (b) and the parabola (c) is

