

PLACEMENT TEST FOR MATH8

SEPT. 6, 2014

1. How many license plates can be formed if every license plate has 2 different letters followed by 2 different numbers?
2. The symbol ${}_nP_k$ (some use the symbol $P(n,k)$) denotes the number of k-permutations of n. When is it used and what is the formula?
3. Given points $A = (x_1, y_1)$ and $B = (x_2, y_2)$, find the coordinates of the vector $\vec{v} = \overrightarrow{AB}$.
4. Calculate $1 + 2 + 2^2 + \cdots + 2^{10} =$
5. Given $x + \frac{1}{x} = 7$, find $x^2 + \frac{1}{x^2}$ and $x^3 + \frac{1}{x^3}$.
6. Solve the following equation: $x^3 - 4x = 0$
7. Write $\frac{1 + \sqrt{3}}{1 - \sqrt{3}}$ in the form $a + b\sqrt{3}$, with rational a, b.
8. What is $\sin(30^\circ)$?
9. For what values of x is $\frac{(x + 1)(x - 2)}{x - 3} > 0$?