BECA / Huson / 11.1 IB Math SL Name:
9 January 2019
Do Now: Regents exponent problems

1.

Which equation has $1 - i$ as a solution?

(1) $x^2 + 2x - 2 = 0$ (3) $x^2 - 2x - 2 = 0$

(2) $x^2 + 2x + 2 = 0$ (4) $x^2 - 2x + 2 = 0$

2.

An equation to represent the value of a car after t months of ownership is $v = 32{,}000(0.81)^{\frac{t}{12}}$. Which statement is *not* correct?

(1) The car lost approximately 19% of its value each month.

(2) The car maintained approximately 98% of its value each month.

(3) The value of the car when it was purchased was \$32,000.

(4) The value of the car 1 year after it was purchased was \$25,920.

3.

A payday loan company makes loans between \$100 and \$1000 available to customers. Every 14 days, customers are charged 30% interest with compounding. In 2013, Remi took out a \$300 payday loan. Which expression can be used to calculate the amount she would owe, in dollars, after one year if she did not make payments?

(1) $300\left(.30\right)^{\frac{14}{365}}$ (3) $300\left(.30\right)^{\frac{365}{14}}$

(2) $300\left(1.30\right)^{\frac{14}{365}}$ (4) $300\left(1.30\right)^{\frac{365}{14}}$

4.

In 2010, the population of New York State was approximately 19,378,000 with an annual growth rate of 1.5%. Assuming the growth rate is maintained for a large number of years, which equation can be used to predict the population of New York State t years after 2010?

(1) $P_t = 19{,}378{,}000(1.5)^t$

(2) $P_0 = 19{,}378{,}000$
$P_t = 19{,}378{,}000 + 1.015P_{t-1}$

(3) $P_t = 19{,}378{,}000(1.015)^{t-1}$

(4) $P_0 = 19{,}378{,}000$
$P_t = 1.015P_{t-1}$