BECA / Huson / Algebra 2: Exponentials Jan 2023 Regents Name:
4 April 2024

Regents problems: Polynomials

1. To the *nearest tenth*, the solution to the equation $4300e^{0.07x} - 123 = 5000$ is
   (a) 1.1
   (b) 2.5
   (c) 6.3
   (d) 68.5

2. The value of an automobile t years after it was purchased is given by the function $V = 38000(0.84)^t$. Which statement is true?
   (a) The value of the car increases 84% each year.
   (b) The value of the car decreases 84% each year.
   (c) The value of the car increases 16% each year.
   (d) The value of the car decreases 16% each year.

3. Which function represents exponential decay?
   (a) $p(x) = \left(\frac{1}{4}\right)^x$
   (b) $q(x) = 1.8^{-x}$
   (c) $r(x) = 2.3^{2x}$
   (d) $s(x) = 4^{\frac{x}{2}}$

4. The sum of the first 20 terms of the series $2 - 6 + 18 - 54 + \ldots$ is
   (a) -610
   (b) -59
   (c) 1,743,392,200
   (d) 2,324,522,934