Exam Review: Exponential Functions

1. **Determine if each relationship is linear, quadratic, exponential or none of these:**

a)

x	y
0	5
1	7
2	12
3	19
4	28

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b)

x	y
2	7
5	9
8	13
11	21
14	37

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2. **Expand and simplify each expression. Express any remaining exponents as positive.**

a) 3^{-4} b) $\frac{(2x^2y)^3}{x^7y^2}$ c) -5.735^0 d) $\left(\frac{x}{3}\right)^{-3}$

3. **Evaluate each rational expression. Show your work.**

a) $16^{\frac{5}{4}}$ b) $9^{-\frac{5}{2}}$

4. **Solve each exponential function. Show your work.**

a) $3^{2x-3} = 243$ b) $27^{x+2} = 9^{x-2}$

5. **The number of cell phones in Canada is growing at an exponential rate given by the equation:**

$$N = 5000000(2)^{0.08t}$$

where N is the number of cell phones and t is the number of years from now.

a) How many cell phones will there be in 2016?

b) When will there be 10 million cell phones?