

Math Lab: Examining Patterns **Possible Solutions**

Procedure

Number of Licorice Pieces	8	4	2	1	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{16}$
Expressed as Powers of 2	2^3	2^2	2^1	2^0	2^{-1}	2^{-2}	2^{-3}	2^{-4}

Lab Analysis

1. The values in the first row are being halved each time (multiplied by a factor of $\frac{1}{2}$).
2. The exponents are decreasing by 1 each time or they are being divided by 2 each time.
3. The value equal to 2^0 is 1.

sample reasons:

- follows the pattern
 - division law: $\frac{x^2}{x^2} = x^{2-2} = x^0$ and $\frac{x^2}{x^2} = 1$ since any number divided by itself is equal to 1. So, $x^0 = 1$.
4. The denominators of the fractions are powers of 2: $2 = 2^1$, $4 = 2^2$, $8 = 2^3$, and so on. The power of 2 that is in the denominator is the same power of 2 that is in the second row, but negative.
 5. You would never be able to completely eat the licorice because it would get smaller and smaller but never totally be gone.