Quiz 5   Name: _____Key_____

You must show your work to get full credit.

For the following data say weither or not it is an exponential function and explain why.

1.

t	0	1	2	3	4
P_t	25.00	30.00	36.00	43.20	51.84

Is it an exponential? _____Yes._____

The ratios are

$$\frac{P_1}{P_0} = \frac{30}{25} = 1.20$$

$$\frac{P_2}{P_1} = \frac{36}{30} = 1.20$$

$$\frac{P_3}{P_2} = \frac{43.20}{36} = 1.20$$

$$\frac{P_4}{P_3} = \frac{51.84}{43.20} = 1.20$$

As those ratios all have the constant value $\lambda = 1.20$, the function is an exponential function.
(In fact, $P_t = P_0 \lambda^t = 25(1.2)^t$)

2.

t	0	1	2	3	4
P_t	65	67.3	70.3	71.3	76.4

This time the ratios are

Is it an exponential? _____

$$\frac{P_1}{P_0} = \frac{67.3}{65} = 1.035$$

$$\frac{P_2}{P_1} = \frac{70.3}{67.3} = 1.045$$

$$\frac{P_3}{P_2} = \frac{71.3}{70.3} = 1.014$$

$$\frac{P_4}{P_3} = \frac{76.4}{71.3} = 1.072$$

These are not constant so it is not an exponential function.