**Foundations 12 Chapter 4 Practice Test**

1. Match each function with the corresponding graph below. Provide your reasoning.
2. y = $0.2 (0.4)^{x}$
3. y = 0.5 log X
4. y = $2 (4) ^{x}$
5. y = -2 log X
6. The table below shows the Canadian government’s net debt in billions of dollars.
	1. Create graphical and algebraic exponential models for the data.
	2. What was the approximate net federal debt in 1988, to the nearest hundredth of a billion dollars?
	3. Assuming the same growth rate, when did the net federal debt reach $600 billion?

|  |  |
| --- | --- |
| Year | Net federal debt ($ billions) |
| 1955 | 17.56 |
| 1960 | 20.40 |
| 1965 | 26.84 |
| 1970 | 35.82 |
| 1975 | 55.13 |
| 1980 | 110.61 |
| 1985 | 250.52 |
| 1990 | 406.61 |
| 1995 | 550.69 |
| 2000 | 561.73 |

1. Predict the number of x-intercept, the y-intercepts, the end behavior, the domain, and the range of the function

F(x) = $6 ( \frac{1}{4} ) ^{x}$

Use the equation of the function to make your predictions. Verify your predictions using graphing technology.

1. Use the characteristics below to describe the graph of this function:

Y = -7 In X

* The location of any intercept
* The end behavior
* The domain and range
* Whether the function is increasing or decreasing

5. The table below shows the approximate energy, in kilojoules (kj), that is released by earthquakes of different magnitudes. In 1960, the Valdivia earthquakes in Chile released approximately

1.1 x $10^{16}$ kj of energy

1. Determine the equation of the logarithmic regression function for the given data
2. Use the equation of the logarithmic regression function to determine the magnitude of this earthquake to the nearest tenth.

|  |  |
| --- | --- |
| Energy released (kj) | Magnitude of earthquake |
| 63 | 0 |
| 2,000 | 1 |
| 63,000 | 2 |
| 2,000,000 | 3 |
| 63,000,000 | 4 |
| 2,000,000,000 | 5 |