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| A ***graph*** is a visual representation of the relationship between two quantities. It shows how one quantity changes with respect to the other quantity.  ***Trends in the graph*** are used to justify decisions and make predictions. |

***EXAMPLE 1*** Describe the relationship shown in each graph. Be specific.

**KEY WORDS**

Increases

grows

Same

Linear

Straight

increases

slowly

rapidly

passes

rapidly

slows down

increases

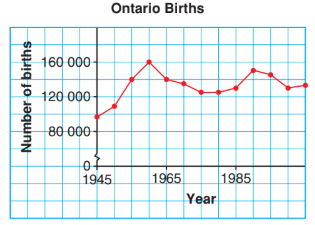
maximum

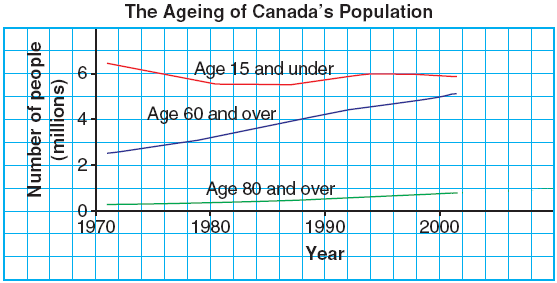
decreases

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| **GRAPH** | **ANALYSIS** |
|  | As the number of hours Jack babysits \_\_\_\_\_\_\_\_\_\_, his earnings \_\_\_\_\_\_\_\_\_\_\_\_ by the \_\_\_\_\_\_ (constant) amount.  This graph represents a \_\_\_\_\_\_\_\_ relationship because the line is \_\_\_\_\_\_\_\_\_. |
|  | As time \_\_\_\_\_\_\_\_\_\_\_\_\_, the amount of the compound interest investment:  PART A: increases \_\_\_\_\_\_\_\_\_  PART B: increases \_\_\_\_\_\_\_\_\_ |
|  | As time \_\_\_\_\_\_\_\_\_, the temperature of cup of coffee:  PART A: decreases \_\_\_\_\_\_\_ at first,  PART B: cooling \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, finally levelling off at room temperature. |
|  | As fertilizer use \_\_\_\_\_\_\_\_\_\_\_\_, the crop yield also increases to a \_\_\_\_\_\_\_\_\_\_\_\_ where it reaches its peak and then \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. |

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| **Trends** (patterns of change) in a graph are often used to justify decisions and make predictions.  Trends occur in 3 broad groups:   1. Increasing 2. Decreasing 3. Constant (no change)   Divide the graph into intervals of time when the number of births is increasing, constant, or decreasing. |

**EXAMPLE 2:** The graph below shows the number of births in Ontario from 1945 to 2005.   
Describe the trends in the graph.

* From 1945 to 1960
* From 1960 to 1975
* From 1975 to 1980
* From 1980 to 1990
* From 1990 to 2000
* From 2000 to 2005

***EXAMPLE 3*** Use the graph to predict the number of Canadians in each age group in 2010.

Age 15 & under:

Age 60 to 80:

Age 80 plus:

This trend suggests that a declining number of younger Canadians will have to \_\_\_\_\_\_\_\_\_ an increasingly larger number of elderly Canadians.