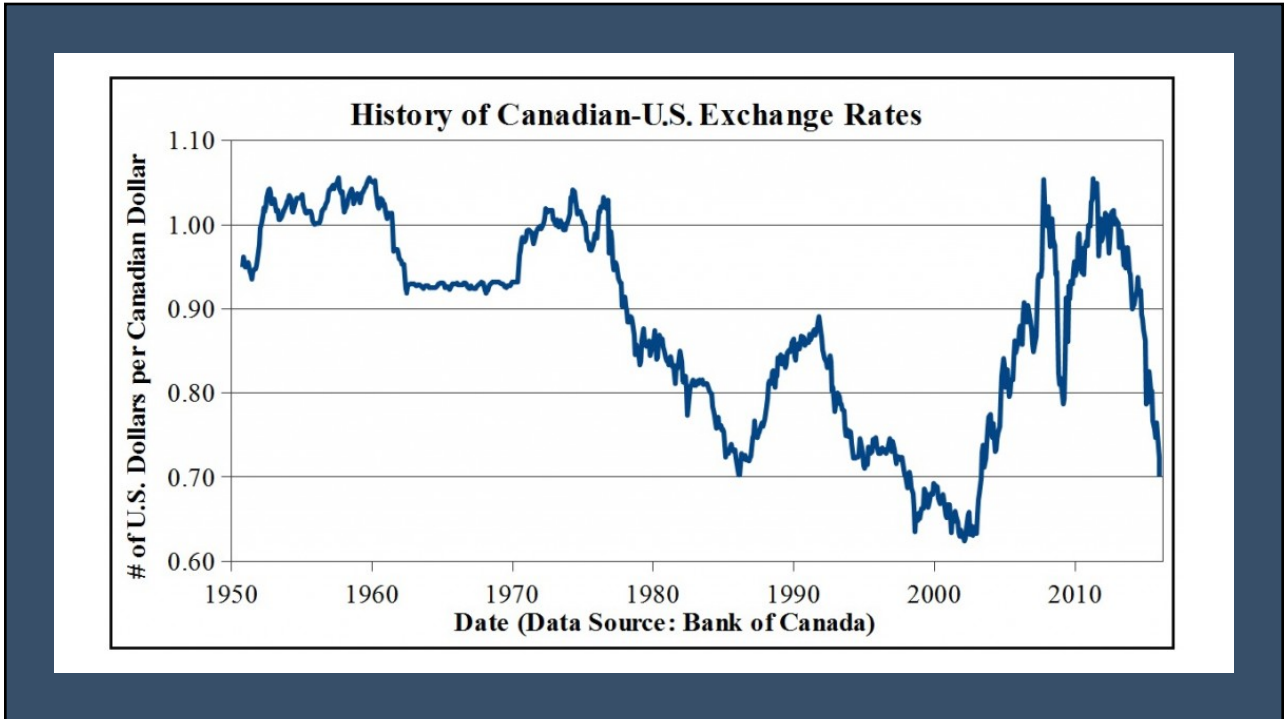




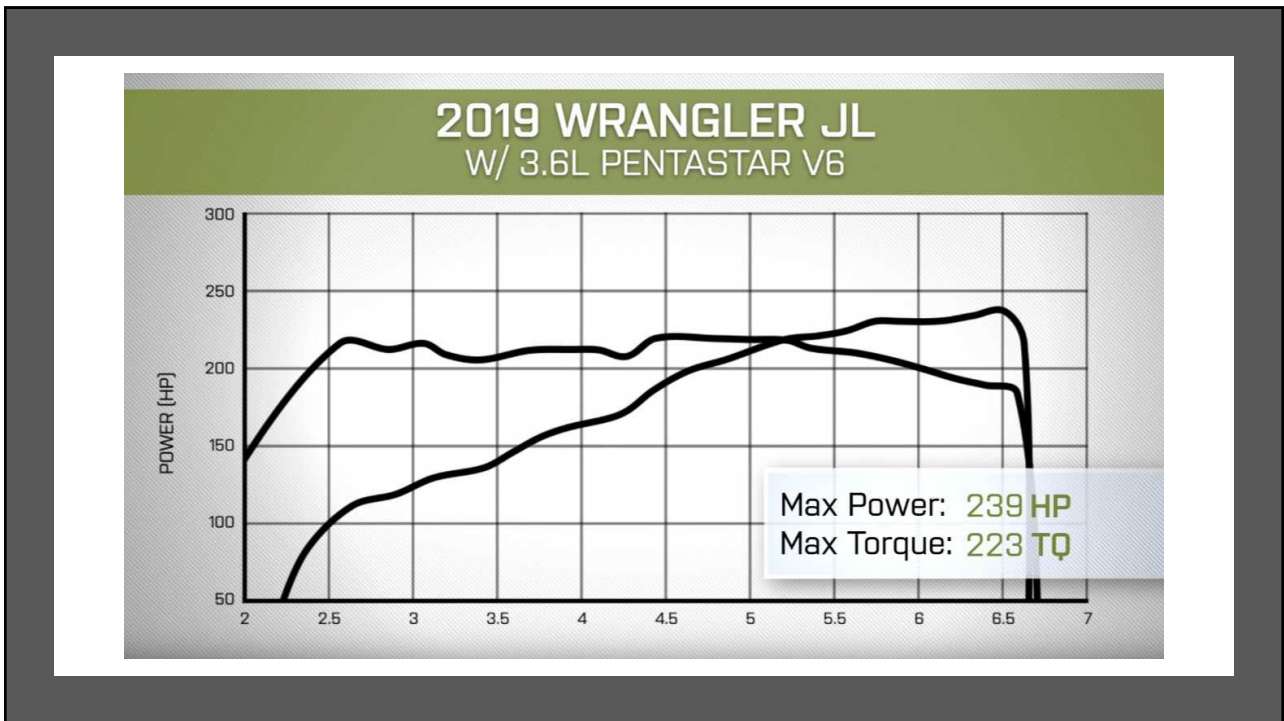
66



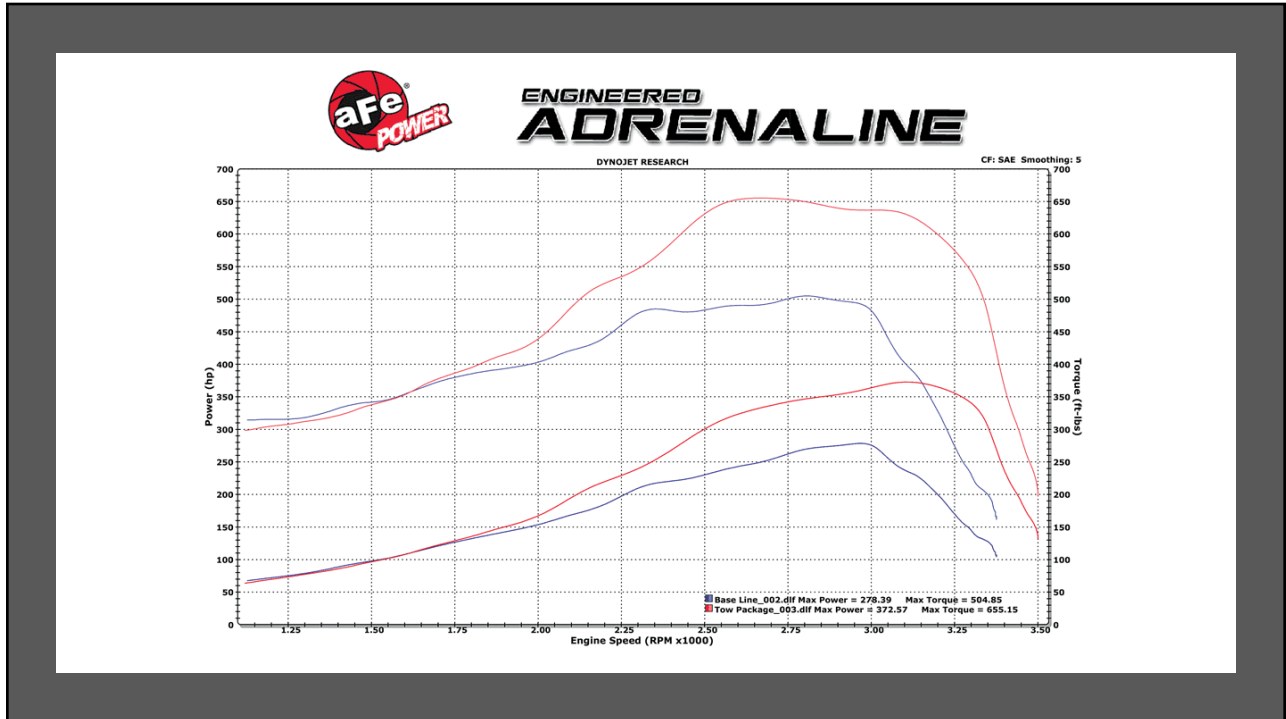
67



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How Can Graphs be Misleading

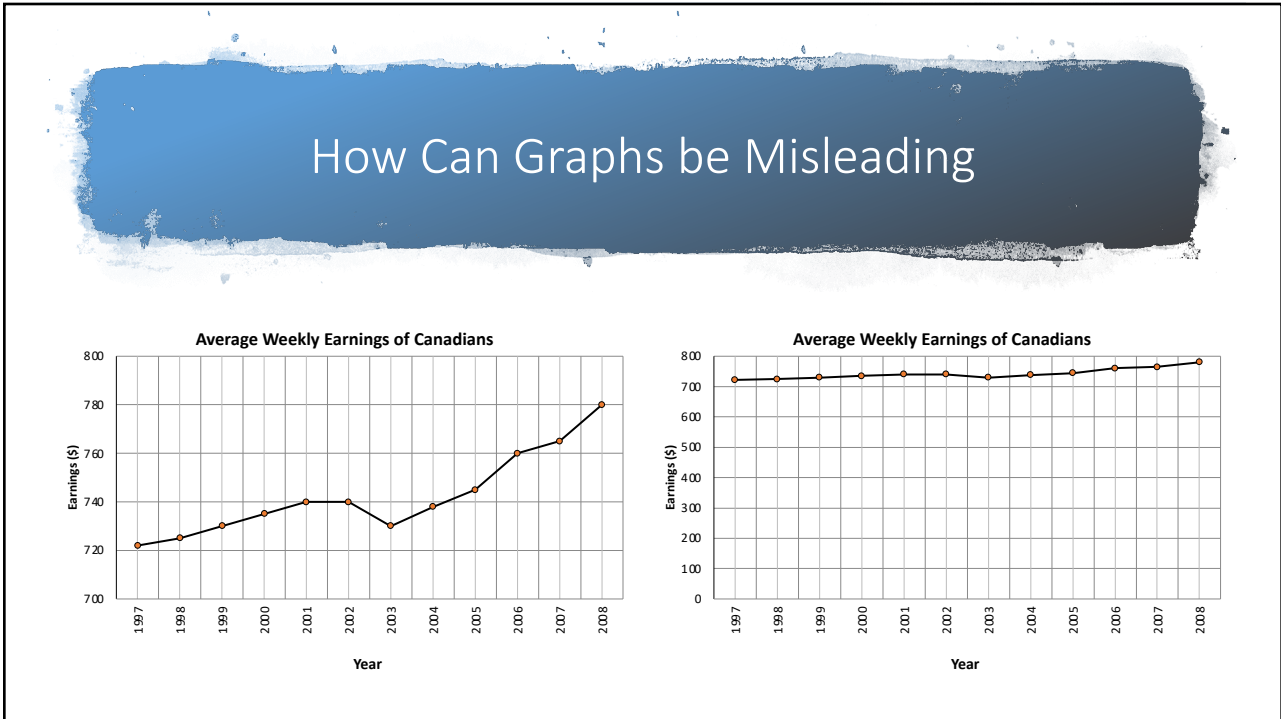
Any graph can be made to seem misleading. By increasing or decreasing the scale, changing the starting point on an axis – especially not starting at zero – you can make the viewer see the data in a certain way. Distorting or skewing the data in this way makes the graph, or any other kind of statistic, misleading.

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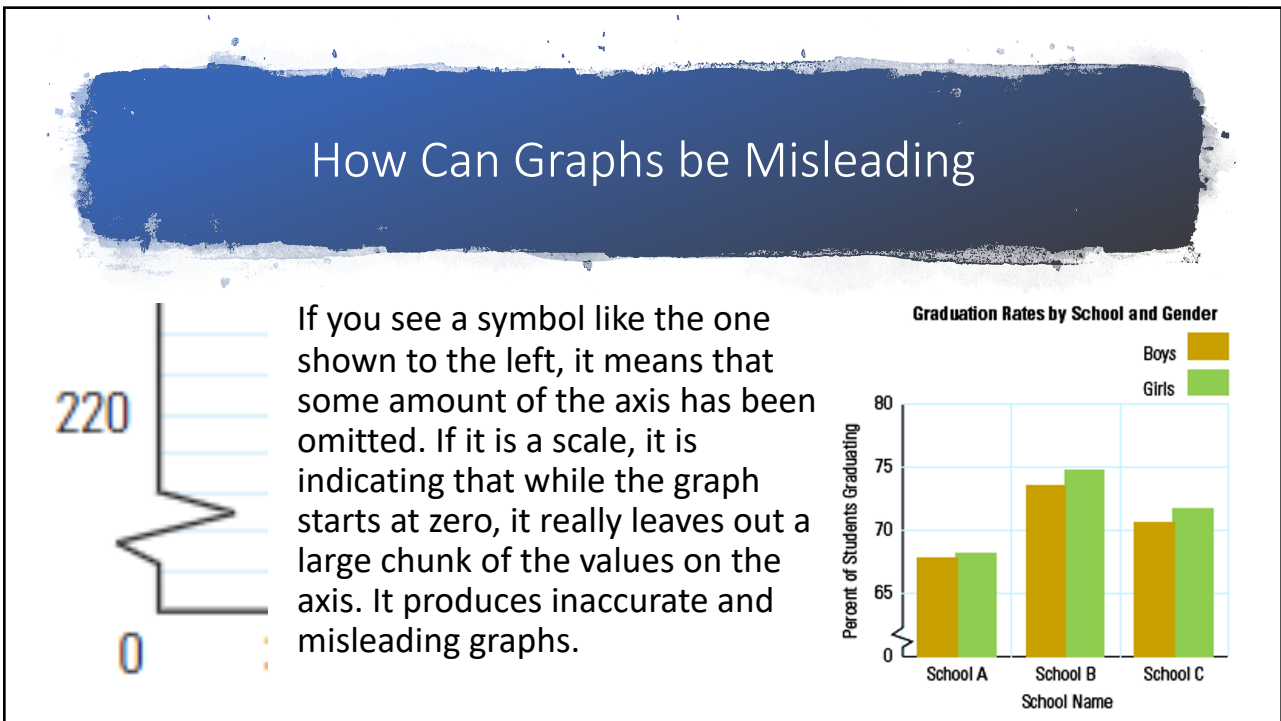
Average Weekly Earnings of Canadians

Year	Earnings (\$)
1997	720
1998	725
1999	730
2000	735
2001	740
2002	740
2003	730
2004	740
2005	755
2006	770
2007	780
2008	795

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How Can Graphs be Misleading

Graphs can also be misleading when the increment on the vertical axis is not consistent.

Generally

- Bar graphs as well as broken-line graphs can be misleading.
- Histograms and circle graphs are less likely to be misleading unless they are drawn incorrectly.

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How Can Graphs be Misleading

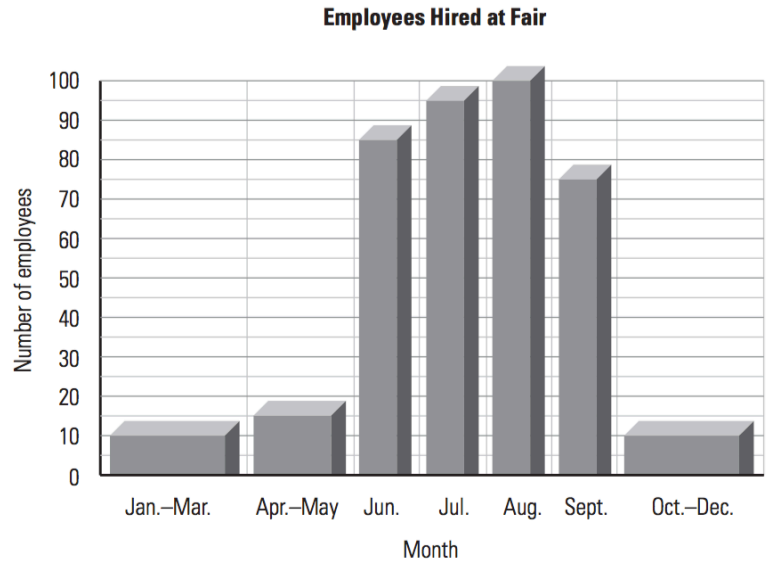
Things to watch for to tell if graphs are misleading:

- Does the vertical axis start at zero?
- Is there a gap between zero and the next value?
- Are the increments along the vertical axis the same? That means does each grid line represent the same amount on the scale.
- Are the bars on a bar graph all the same width?
- Is the space between bars on a bar graph the same?
- Is the scale on the horizontal axis on a broken line graph squished?
- Is the scale on the vertical axis on a broken line graph squished?
- Things left out or missing?

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Sample Problem – Bar Graphs

Sabine is a staff supervisor at city fairgrounds. She made the graph below to show the number of employees working at the fair each month. Give two reasons why the graph may be misread.

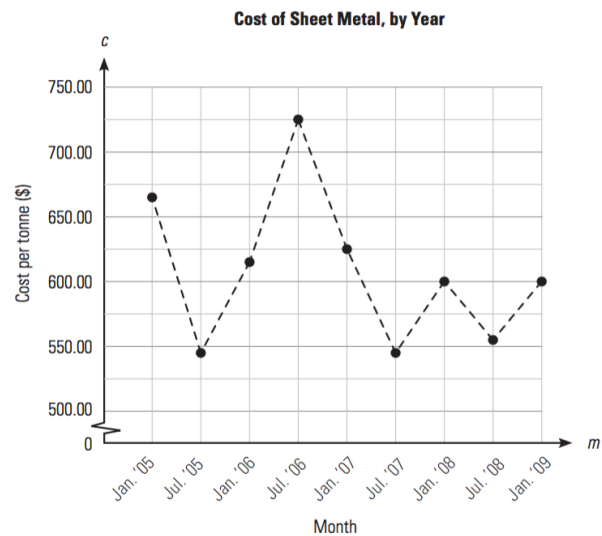


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Sample Problem – Broken-Line Graph

The graph below indicates the approximate cost of sheet metal per tonne over a period of time.

- What does it appear has happened to the price of sheet metal over time?
- What are the scale and starting point of the vertical axis?
- Redraw the graph starting the vertical axis at zero and using the same scale. What does this new graph show about the fluctuation in prices?



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