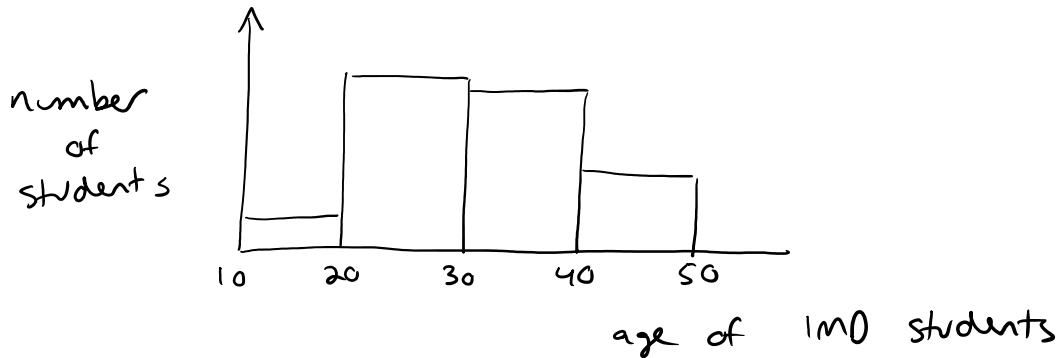


Section 1.4: Misleading Graphs

Tuesday, March 3, 2020 11:22 AM

ways that graphs can mislead the reader include but are not limited to:

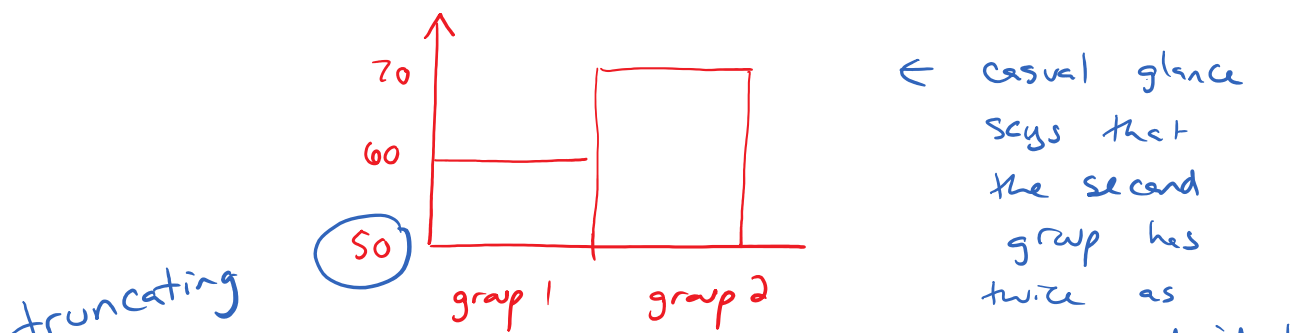
① poorly defined categories



which students are aged 10-20 years old?
the chances of an IMO student being younger than 16 are very small,
so having a bin from 10-20 is misleading

② manipulating the vertical scale

②a suppressing zero

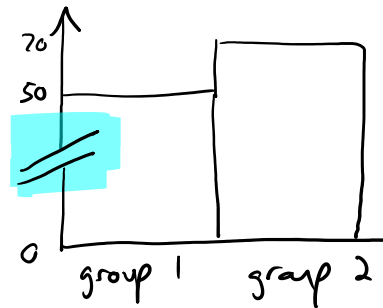


truncating
or
suppressing
zero (the
origin)

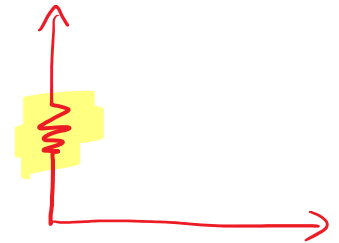


group has
twice as
many individuals
as first group

if you must, then do this:



or



② inconsistent scales / poor graphics

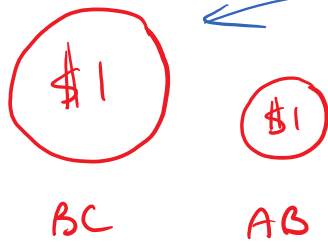
- when graphing software is not used



30% is almost twice the
size of 17% but the
height of the bar does
not reflect this

③ pictographs

Student debt:

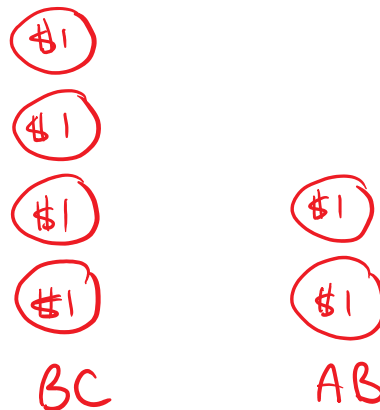


the diameter of the BC coin is twice the diameter of the AB coin

but the BC area is four times the AB area

the human eye tends to compare areas instead of lengths

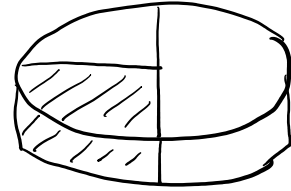
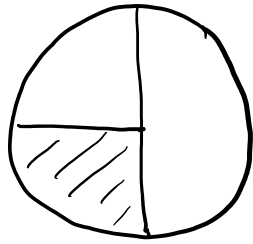
if you must, then do:



repeated images of same size

④ inappropriate 3D

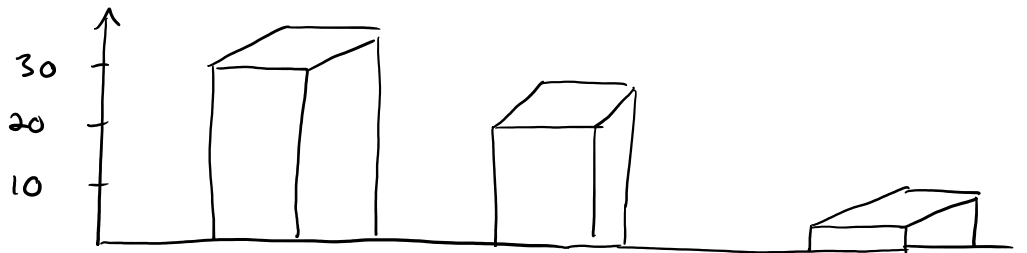
pie charts



↑
this section looks larger
in the 3D representation

in the 3D pie chart, it's very difficult to estimate the relative size of slices due to the perspective

bar charts:



is it the front face that should be compared with the scale? the back face?

↑
the 3D makes this one look bigger than it really is