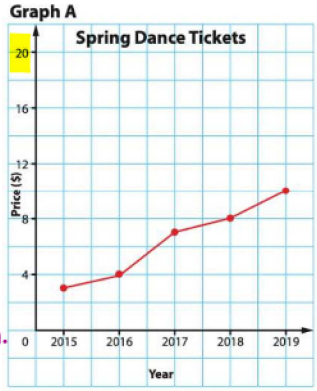
8.3 Identifying and Critiquing Misrepresented Data

Math 9 **Identifying and Critiquing Misrepresented Data**

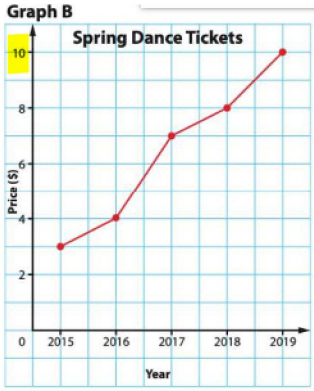
The following graphs show the prices of spring dance tickets. Compare the information shown. What message does each graph send?

Graph A



The scale in this graph goes from 0 to 20 which helps to give the impression that prices didn't increase that much.

Graph B



The scale in this graph goes from 0 to 10, thereby stretching the graph to give the impression the prices have risen a lot.

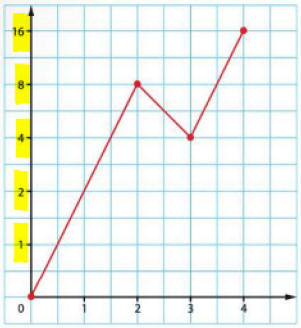
Graph A gives the impression that ticket prices have not increased by that much.

Graph B gives the impression that ticket prices have increased a lot.

The prices shown in both graphs are the same.

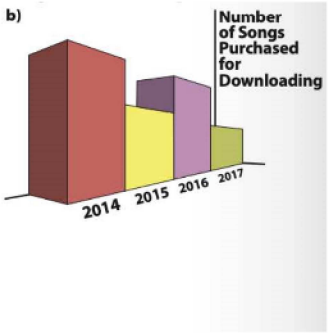
In what ways does each graph display misleading information?

a)



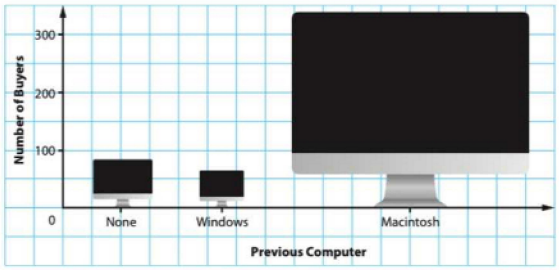
- scale is inconsistent (numbers double instead of increasing by the same amount)
- no title, axes are not labelled so we don't know what this graph represents

b)



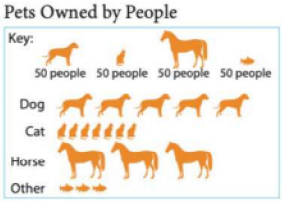
- the angle makes it look like more songs were purchased in 2014 than 2016 (the numbers are actually the same)
- a 2D graph would show the information more clearly

c)



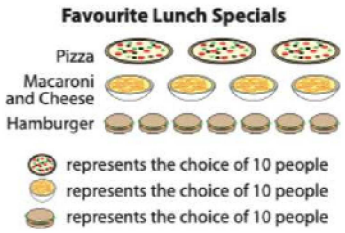
- even though the axes are labelled, it is unclear what this graph represents since there is no title
- the monitors should be the same size

d) Pets Owned by People



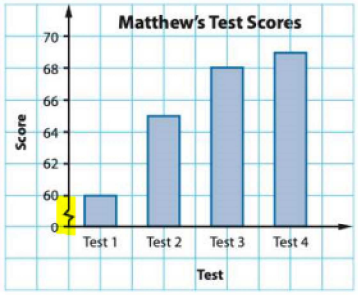
- the pictures are different sizes which makes it seem like more people own dogs than cats
- category for not owning a pet is missing
- pictures should have the same width or be spaced out appropriately

Explain how this graph could be misleading. What conclusion does the graph suggest about favourite lunch specials? How could this graph be redrawn to represent the data more accurately?



Seems like each lunch special is equally liked. However, 70 chose hamburger, 40 chose mac & cheese, and only 30 chose pizza. The pictures should be the same size to represent the data more accurately.

The following graph shows Matthew's test scores on his first four tests. What is your initial impression?



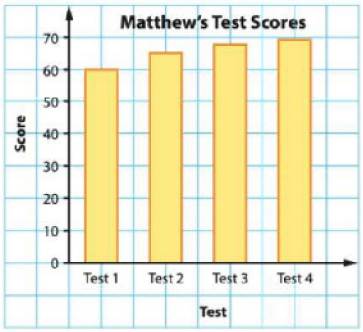
It appears that Matthew did poorly on the first test and improved a lot with the next three tests.

What score did Matthew receive on each test? How is this graph distorted to create the impression you initially had?

His scores were 60, 65, 68 and 69.

The break in the y-axis creates this impression.

The following graph more accurately represents the improvement in Matthew's test scores. However, it might still be misleading. What is the impression that this graph creates?



While this graph more accurately shows his improvement in test scores, the impression is that he did very well on each test.

The scale should go to 100 since that is the highest possible mark.

Assignment: handout