Panel 1

Make a box-and-whisker plot of each set of data.

1. Use this data: $67, 43, 55, 23, 18, 51, 43, 72, 59, 62, 23, 20, 37, 38, 46, 58$

1. Enter Data into a list

2. Press STAT

3. Arrow key to CALC

4. Choose 1: 1-Var Stats and press ENTER

5. Arrow down to find minX, Q_1, Med, Q_3, maxX.

6. Draw Box-and-Whisker.

Panel 2

OR

Make a box-and-whisker plot of each set of data.

1. Use this data: $67, 43, 55, 23, 18, 51, 43, 72, 59, 62, 23, 20, 37, 38, 46, 58$

1. Enter Data into a list

2. Press 2ND then Y=

3. Choose one of the scatter plots

4. Turn it ON

5. For Type choose the Box-and-Whisker in the second row.

6. Press ZOOM then 9:ZoomStat

Panel 3

Which vehicles get better gas mileage? Give a reason.

Small cars

mpg

Sport utility vehicles
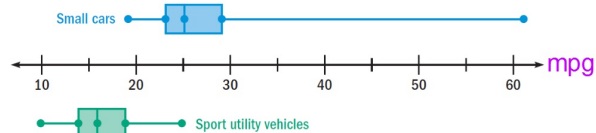
Example answer is below

Small cars get better gas mileage because...

• 50% of them get 25mpg or better when no SUV gets higher than 25mpg

• All of them get 18mpg or better when only 25% of SUV's get 18mpg or better

Panel 4

On a standardized test your score was reported to be in the 90th percentile.

What does this mean?

Your score was better than 90% of all those who took the test.

Percentile:

A number that represents the percent of data that falls <u>below</u> a given value.

If you tested at the 85th percentile that means that you scored higher than 85% of those taking the test.

Or you could say that 85% of those testing ended up below your score.

Or you could say that only 15% of those testing scored higher than you.

12, 9, 8, 15, 20, 3, 17, 9, 10, 14

First put the data in order!

3, 8, 9, 9, 10, 12, 14, 15, 17, 20

1. 17 is at what percentile? $\dfrac{8}{10} = 80^{th}$ %-tile

8 of the 10 numbers are below 17

2. What number is at the 40th percentile?

$(.40)(10) = 4 \longrightarrow \boxed{10}$

40% of the numbers is 4 of them and 10 has 4 of the numbers below it.

3. 9 is at what percentile?

2 of the 10 numbers are below 9

$\dfrac{2}{10} \longrightarrow 20^{th}$ %-tile

24,28,29,32,33,38,38,39,41,43,44,56,57,60,68

1. What percentile is 38 at?

5 of the 15 numbers are below 38.

$\dfrac{5}{15} \Longrightarrow 33^{RD}$ %-tile

2. What value is at the 80th percentile?

$(.80)(15) = 12 \qquad \boxed{57}$

80% of the 15 numbers is 12. 57 is at the 80th percentile because 12/15 are below it.

Could you score at the 100th percentile?

Not using this definition of percentile.
You can't score better than 100% of all those who took the test.
(you can't score better than youself!)

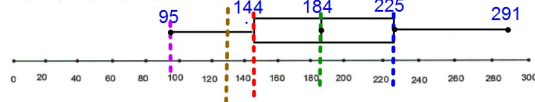## Saturday Night Bowling Scores

Make a Box-and-Whisker Plot
from the data given then answer the
questions that follow.

Saturday Night Bowling Scores:

120, 215, 198, 115, 291, 95, 230, 144, 175, 270, 166, 193, 154, 225

95   144   184   225   291

1. If you join this league and normally bowl 225 you would be better than what percent of the other bowlers?
   75%

2. If you join this league and normally bowl 95 what % of the other bowlers are better than you?
   100%

3. If you join this league and normally bowl 184 what % of the bowlers are better than you?   **50%**

4. If you join this league and normally bowl 144 you would be better than what percent of the other bowlers?
   25%

5. If you join this league and normally bowl 139 would you expect to win more games than you lose?

   Since you are below the lower quartile more than 75% of the bowlers are better than you which means you'd expect to lose more often.
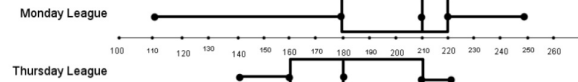

Monday and Thursday Night Bowling Scores

Use the given Box-and-Whisker Plots
to answer the questions about
the Monday and Thursday Night
Bowling Scores.

Monday scores:
176, 212, 220, 110, 210, 206, 195, 220, 188, 180, 250, 214, 113, 218, 240

Thursday scores:
140, 145, 157, 160, 166, 168, 174, 186, 195, 206, 210, 217, 219, 220

Monday League

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100   110   120   130   140   150   160   170   180   190   200   210   220   230   240   250   260
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Thursday League

1. If you bowled 210 in the Thursday league you are better than what % of the bowlers in your league? 75%

2. If you bowled 160 in the Monday league you are better than what % of the bowlers in your league? <25%

3. If you bowled 220 in the Thursday league you are the best bowler on Thursday night. What % of the Monday bowlers are better than you? 25%

4. If you normally bowl 190 which league would you rather join? Explain.

 Possible answer: Thurs night, because more than 50% of the bowlers are worse than you.

5. If you normally bowl 140 which league would you rather join? Explain

Possible answer: Mon night because you'd be the worst bowler on Thur night but are at least better than some of the bowlers on Mon night (less than 25%)