9.2 Mean

ESSENTIAL QUESTION:

How can you find the mean of a set of numbers?

35, 56, 41, 59, 37, 48, 53, 23

1. Add the numbers.

2. Divide the Sum of the numbers by how many numbers you added.

35 + 56 + 41 + 59 = 191

37 + 48 + 53 + 23 = 161

191 + 161 = 352

$352 \div 8 = 44$

Mean = 44

Mean-> The Sum of the numbers divided by the number of values that were added (average).

Outlier ->A number that is much higher or lower than the rest of the numbers.

EXAMPLE 1->Finding the Mean

The table shows the number of text messages sent by a group of friends over 1 week. What is the mean number of messages sent?

Text Messages Sent	
Mark:	120
Laura:	95
Stacy:	101
Josh:	125
Kevin:	82
Maria:	108
Manny:	90

120 + 95 + 101 + 125 + 82 + 108 + 90 = 721

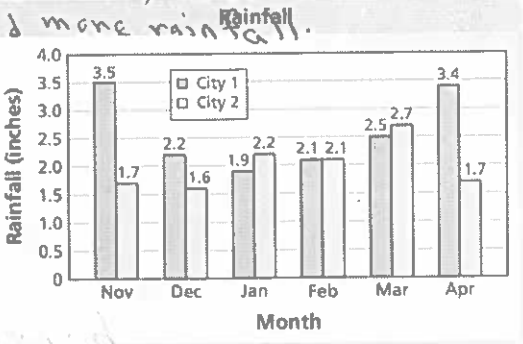
$721 \div 7 = 103$

The mean number of text messages sent is 103.

EXAMPLE 2->Comparing Mean

The double bar graph shows the monthly rainfall amounts for two cities over a 6-month period. Compare the mean monthly rainfall.

The average rainfall for City 1 is 2.6 inches and for City 2 it is 2 inches. City 1 averaged more rainfall.



City 1: 3.5 + 2.2 + 1.9 + 2.1 + 2.5 + 3.4 = 15.6

$15.6 \div 6 = 2.6$

City 2: 1.7 + 1.6 + 2.2 + 2.1 + 2.7 + 1.7 = 12

$12 \div 6 = 2$

ON YOUR OWN

Find the mean of the data.

1. 49, 62, 52, 54, 61, 70, 55, 53

2
49
62
52
54
61
70
55
+53
456

$8\overline{)456}$ → 57, −40, 56, −56

Mean: 57

2. 7.2, 8.5, 7.0, 8.1, 6.7

1
7.2
8.5
7.0
8.1
+6.7
37.5

$5\overline{)37.5}$ → 7.5, −35, 25, −25

Mean: 2.5

EXAMPLE 3->Finding the Mean With and Without an Outlier

The table shows the heights of several Shetland ponies.

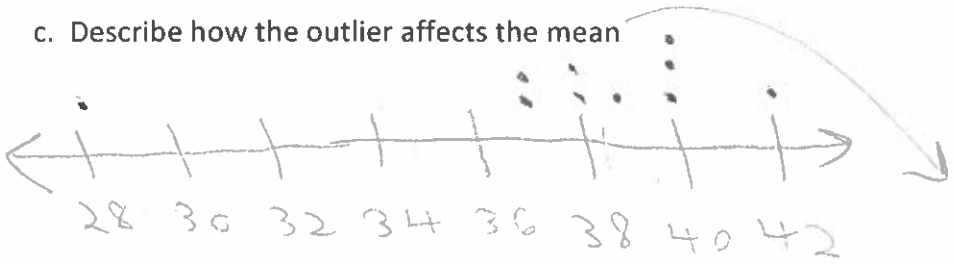
Shetland Pony Heights (inches)				
40	37	39	40	42
38	38	37	28	40

a. Identify the outlier.

28 is the outlier

b. Find the mean with and without the outlier.

c. Describe how the outlier affects the mean



The mean with the outlier is less than all but 3 of the heights. The mean without the outlier is about in the middle of the heights this better represents the heights

Mean without outlier

40
37
39
42
38
38
37
+40
381

$9\overline{)351}$ → 39, −27, 81, −81

Mean: 39

40
31
39
42
38
38
37
28
+40
319

$10\overline{)379.0}$ → 37.9, −30, 79, −70, 90