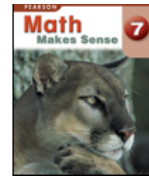


WARM UP GRADE 7



- 1) What is the mean, median, mode and range of the following set of data?

a) ~~18, 16, 20, 15, 11, 26, 16~~

11, 15, 16, 16, 18, 20, 26

$$\begin{aligned} \text{Mean} &= \frac{122}{7} \\ &= 17.4 \end{aligned}$$

median = 16

mode = 16

$$\begin{aligned} \text{Range} &= \text{Big} - \text{Small} \\ &= 26 - 11 \\ &= 15 \end{aligned}$$

~~2) Find 115% of 180~~

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#1, #2(a), #3(a,b)#4(a,b), #6(a,b,c), #7(a,b,c)

1. 23, 23, 26, 27, 28, 28, 31

★

a) mode 23 and 28

median - 27
(4th)

mean $\frac{185}{7} = 26.4$

★

(b) mean since most #s are relatively close and there are no major changes

★ (c)

The wether channel reported one of the modes when there was 2 ver different modes so the mean is a better average

2. Math 55 68 69 75 78 85 92

★

mode - none

median 75

★

mean $\frac{522}{7} = 74.6$

★

Music 50 69 72 81 81 92 96

mode 81

median 81

mean $\frac{541}{7} = 77.3$

★

French 67 68 74 74 76 80 82

mode 74

median 74

mean $\frac{521}{7} = 74.4$

(b)

(c)

3a) Week 1



600 700 800 875 1160

mode - none

median - 800

$$\text{mean } \frac{4125}{5} = 825$$

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#1, #2(a), #3(a,b)#4(a,b), #6(a,b,c), #7(a,b,c)

Week 2

600 725 775 860 1165

mode: none

median 775

$$\text{mean } \frac{4125}{5} = 825$$

★b) 2 weeks together

600 600 700 725 775 800 860

875 1150 1165

mode - 600

$$\text{median (5th, 6th)} \quad \frac{775+800}{2} = \frac{1575}{2} = 787.5$$

$$\text{mean } \frac{8250}{10} = 825$$

4 In thousands, 50
 ★ 28, 28, 50, 90, 130

mode 28 000 and 50 000

median 50 000

mean $\frac{376000}{6}$

= 62666.67

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#1, #2(a), #3(a,b), #4(a,b), #6(a,b,c), #7(a,b,c)

b)
 ★ Range

$$130\ 000 - 28\ 000 = 102\ 000$$

c) Want to attract employees
 → mean

Want to suggest company doesn't
 pay well
 → mode

5a) True

b) Mean 15, means on average
 there will be 15 chips in each cookie,
 it does not mean that there will be
 15 choc chips in each cookie.

★ b a) Mode \rightarrow it was the most popular size

★ b) 10, 10, 11, 13, 15

mode 10

median 11

mean $\frac{59}{5} = 11.80$

He would use the mean since it was the highest.

★ c) median - gives the middle number.

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#1, #2(a), #3(a,b)#4(a,b), #6(a,b,c), #7(a,b,c)

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#1, #2(a), #3(a,b)#4(a,b), #6(a,b,c), #7(a,b,c)

7.

★ 380, 385, 385, 390, 390, 390, 390, 395, 395,
 ★ 405, 405, 405, 405, 405, 405

a) mode 405

median 395

(8th
number)

$$\text{mean } \frac{5930}{15} = 395.3$$

★ b) range $405 - 380$
 25

★ c) In order for the shipment to be acceptable, you would have to use the mode.

8. Mean Mark of 5 mark 80,
then sum of the marks has to be
 $5 \times 80 = 400$

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#1, #2(a), #3(a,b)#4(a,b), #6(a,b,c), #7(a,b,c)

$$82 + 75 + 78 + 80 = 315$$

$$\text{Math mark } 400 - 315 = 85$$

b) mean of 81
sum $5 \times 81 = 405$

$$\text{Math mark } 405 - 315 = 90$$

c) mean 82
sum $5 \times 82 = 410$

$$\text{Math mark } 410 - 315 = 95$$

b) It is not possible to get a mean of 84 or higher, $84 \times 5 = 420$

$$420 - 315 = 105$$

He can not get 105 on his math.

9. Mean of 3 marks is 80%

Fourth mark 94%

sum of first 3 marks

$$3 \times 80 = 240$$

$$\text{plus 4th mark } 240 + 94 \\ = 344$$

$$\text{New mean } \frac{344}{4} = 86$$

Celia was incorrect.

Test Tomorrow (Some good Test questions)

1) Find the mean, median, mode and range of the following:

a) 16, 27, 28, 17

16, 17, 27, 28

$$\text{Mean} = \frac{88}{4} = 22$$

$$\text{Median} = \frac{17+27}{2} = \frac{44}{2} = 22$$

mode \Rightarrow none

$$\text{Range} = 28 - 16 = 12$$

b) ~~5, 5, 6, 7~~

5, 5, 6, 7, 8

$$\text{Mean} = \frac{31}{5} = 6.2$$

$$\text{Median} = 6$$

$$\text{Mode} = 5$$

$$\text{Range} = 8 - 5 = 3$$

2) The find the value of Ted's 5th test mark if he wants his MEAN to be 89% given his other test results to be 75%, 98%, 100%, 80%.

$$\text{Ted} \quad \frac{\text{Add up all 5 test}}{5} = 89$$

$$\text{Sum needed} = 89 \times 5 = 445$$

Sum has 353

$$445 - 353 = 92 \%$$

A good test question

The counters in a bag are sorted by colour

Colour	Number of Counters
Red	7 rrrrrrr
Yellow	18 yyyy y y yyyyyyyyyyyy
Orange	16 oooo ooooo oooo oooo
Green	11
Black	13

a) How many counters are in the bag? 65

b) What is the mean number of counters? $\frac{65}{5} = 13$

c) What is the mode colour? How do you know? yellow has most
Counters

Outliers \Rightarrow # that does not fit in group
(either end point)

~~43~~, ~~40~~, ~~18~~, ~~37~~, ~~38~~, ~~38~~, ~~42~~

18, 37, 38, 38, 40, 42, 43
outlier

a) Calculate mean/median/mode with all #.

b) Calculate mean/median/mode without outlier.

Class/Homework

Page 278 # 1(a,b), ~~#2~~, #3(a,b,c,d), ~~#4~~, ~~#5~~

Test

(Thursday, Feb 23)

Unit 7 Data Analysis (Part 1) Test

Topics: Mean, Median, Mode, Range, Outliers

8 Multiple Choice

3 Short Response

(VERY similar To wamp ups)

Mid-Unit Review

LESSON

- 7.1** **1.** Here are the heights, in centimetres, of the students in a Grade 7 class:
7.2 162, 154, 166, 159, 170, 168, 158, 162, 172, 166, 157, 170, 171, 165, 162, 170, 153, 167, 164, 169, 167, 173, 170
- Find the mean, median, and mode heights.
 - What is the range of the heights?
- 2.** The mean of five numbers is 20. The median is 23. What might the numbers be? Find 2 different sets of data.
- 7.3** **3.** The cost of hotel rooms at *Stay in Comfort* range from \$49 to \$229 per night. Here are the rates charged, in dollars, for one particular night: 70, 75, 85, 65, 75, 90, 70, 75, 60, 80, 95, 85, 75, 20, 65, 229
- Calculate the mean, median, and mode costs.
 - Identify the outliers. How can you explain these costs?
 - Calculate the mean, median, and mode costs without the outliers. How is each average affected when the outliers are not included?
 - Should the outliers be used when reporting the average cost of a hotel room? Explain.
- 7.4** **4.** A quality control inspector measures the masses of boxes of raisins. He wants to know if the average mass of a box of raisins is 100 g. The inspector randomly chooses boxes of raisins. The masses, in grams, are: 99.1, 101.7, 99.8, 98.9, 100.8, 100.3, 98.3, 100.0, 97.8, 97.6, 98.5, 101.7, 100.2, 100.2, 99.4, 100.3, 98.8, 102.0, 100.3, 98.0, 99.4, 99.0, 98.1, 101.8, 99.8, 101.3, 100.5, 100.7, 98.7, 100.3, 99.3, 102.5
- Calculate the mean, median, and mode masses.
 - For the shipment to be approved, the average mass of a box of raisins must be at least 100 g. Which average could someone use to describe this shipment to get it approved? Explain.
- 5.** Is each conclusion true or false? Explain.
- The mode number of books read last month by students in James' class is 5. Therefore, most of the students read 5 books.
 - A random sample of 100 people had a mean income of \$35 000. Therefore, a random sample of 200 people would have a mean income of \$70 000.

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★ 1 - Ordered Data

mode = 170

median = 166
(12th number)

mean $\frac{3795}{23} = 165$

b) Range $\frac{173 - 153}{20}$

★ 2. Mean 20
Median 23

sum $20 \times 5 = 100$

7 10 23 30 30

1 16 23 28 32

13 14 23 25 25

10 17 23 24 26

3. a) $^{75, 76}$
 ★ 20, 60, 65, 65, 70, 70, 75, 75, 80, 85, 85,
 90, 95, 229

mode - 75

median - 75
 (8th & 9th)

$$\text{mean } \frac{1314}{16} = 82.13$$

b) outlier 20 and 229

mode 75

median 75

$$\text{mean } \frac{1065}{14} = 76.07$$

} no change
 → lower or
 decreased

(d)

4

97.6, 97.8, 98.0, 98.1, 98.3, 98.5, 98.7,
 98.8, 98.9, 99.0, 99.1, 99.3, 99.4, 99.4,
 99.8, 99.8, 100.0, 100.2, 100.2, 100.3,
 100.3, 100.3, 100.3, 100.5, 100.7, 100.8,
 101.3, 101.7, 101.7, 101.8, 102.0, 102.5

mode - 100.3

median

$$16^{\text{th}}, 17^{\text{th}} \left\} \frac{99.8 + 100}{2} = 99.9$$

$$\text{mean } \frac{3096.1}{32} = 96.7$$

b) For the shipment to be approved, you have to use the mode, it is the only average > 100 .

★5. 40 students

5 students	5 books		
3 students	7	4	→ 0
4	6	4	→ 8
4	4	2	→ 3
3	10		
4	1		
3	2		
4			

The number that occurred most often is 5, however most student read a different number of books.

b) False → You would expect the average to stay about the same, since you are dividing by twice as many people.

