

## Grade 7 Math Benchmark 1

Read each question and choose the best answer. For questions 1 and 2, you are not permitted to use a calculator.



Use the table below to answer question 1.

PARKING GARAGE PRICES

Type of Vehicle	Price (per day)
Car	\$11.00
Truck	\$15.50
Motorcycle	\$6.25
Bicycle	Free

1. Which is the **closest** estimate of what it will cost for one car, two trucks, and two bicycles to park in the garage for one day?

- A \$30.00
- B \$35.00
- C \$40.00
- D \$50.00

2. Four friends are splitting the cost of a pizza. Each friend wants to pay an equal amount of the cost. If the pizza costs \$14.24 after tax, how much will each friend pay?

- A \$1.06
- B \$3.56
- C \$3.58
- D \$4.56

Do not return to the first part of the assessment  
after beginning question 3.

3. Isaac collected the following data about the daily high temperatures in his neighborhood.

87°F, 65°F, 79°F, 74°F,  
71°F, 65°F, 82°F, 82°F,  
83°F, 68°F, 72°F, 80°F,  
69°F, 75°F, 85°F, 75°F

Which stem-and-leaf plot correctly shows this data?

A

Stem	Leaf
6	5 5 8 9
7	1 2 4 5 5 9
8	0 2 2 3 5 7

B

Stem	Leaf
6	5 8 9
7	1 2 4 5 9
8	0 2 3 5 7

C

Stem	Leaf
6	5 5 8 9
7	1 2 4 5 6 9
8	0 2 2 3 5 6

D

Stem	Leaf
6	5 5 8 9
7	1 2 4 5 9
8	0 2 2 3 5 7

4. Marianne received the following quiz grades on seven different quizzes in her English class.

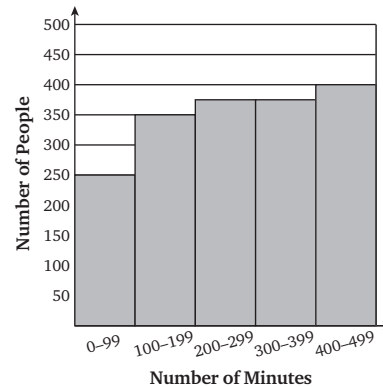
96.1, 79.8, 92.6, 81.0,  
80.7, 80.7, 92.5

What is the **mean** of Marianne's quiz grades?

- A 16.3  
B 80.7  
C 81.0  
D 86.2

5. A cellular-phone company organized some of its customers' cell-phone usage in the histogram below.

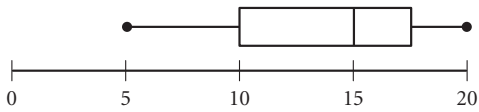
Cell-Phone Minutes Used Each Month



According to the histogram, about how many people used **fewer** than 300 minutes?

- A 375 people  
B 975 people  
C 1,150 people  
D 1,750 people

Use the box plot below to answer question 6.



6. What is the **median** of the data shown in the box plot above?
- A 5  
B 10  
C 15  
D 20
7. Jeremiah's class helped plant new trees in a park. He recorded the height of each tree. The heights, in inches, are listed below.

74.0, 40.6, 74.0, 20.3,  
48.4, 74.0, 29.2

What is the **range** of the heights of the trees they helped plant?

- A 48.4  
B 51.5  
C 53.7  
D 74.0

8. The stem-and-leaf plot below shows the amounts of money that the school store made over the last seventeen days.

Stem	Leaf
2	6 6 7 8 9
3	1 5 5 5 5 7
4	2 3 3 3 6 9

$$2|6 = \$26$$

What is the **mode** of the data?

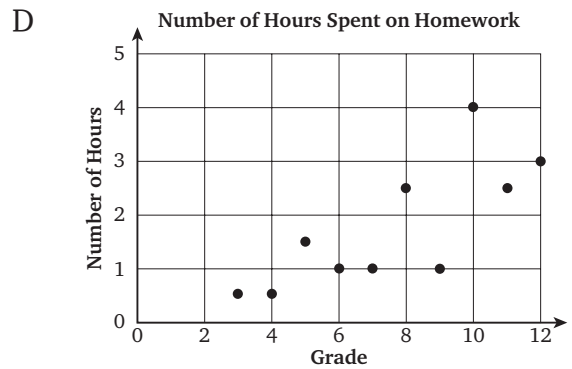
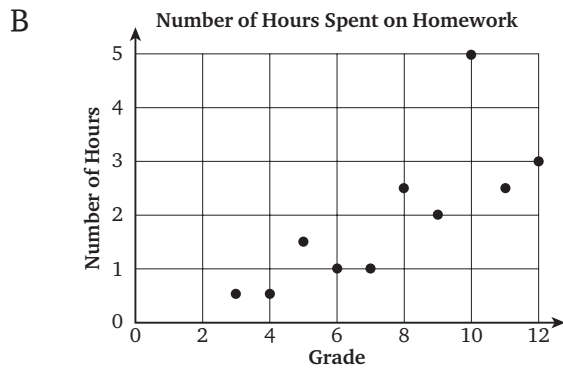
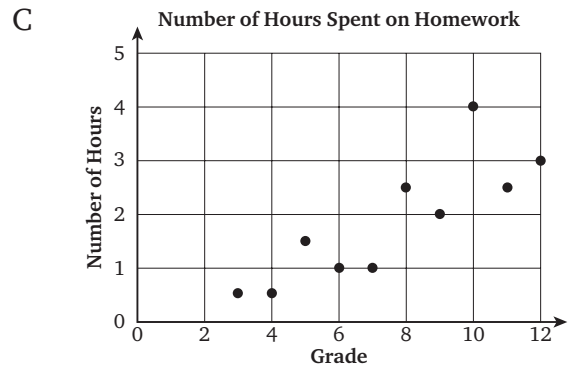
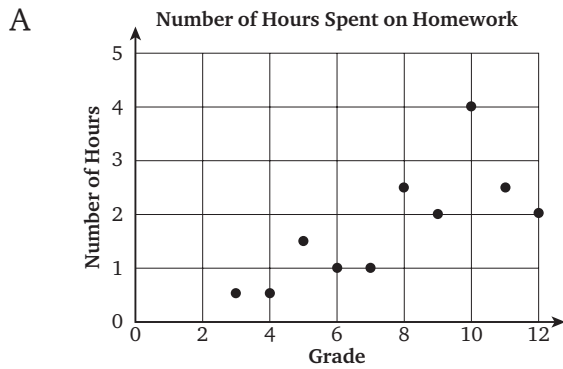
- A \$26  
B \$35  
C \$42  
D \$53

9. Marsha wants to examine how many hours, on average, students in each grade spend on homework. She surveyed 10 students in third through twelfth grade. The results are shown in the table below.

**AVERAGE NUMBER OF HOURS SPENT ON HOMEWORK EACH NIGHT VS. GRADE**

Grade	Average Number of Hours
3	0.5
4	0.5
5	1.5
6	1.0
7	1.0
8	2.5
9	2.0
10	4.0
11	2.5
12	3.0

Which scatter plot **best** represents this data?



10. A local car dealership recorded the total yearly commissions of its salespeople in the table below.

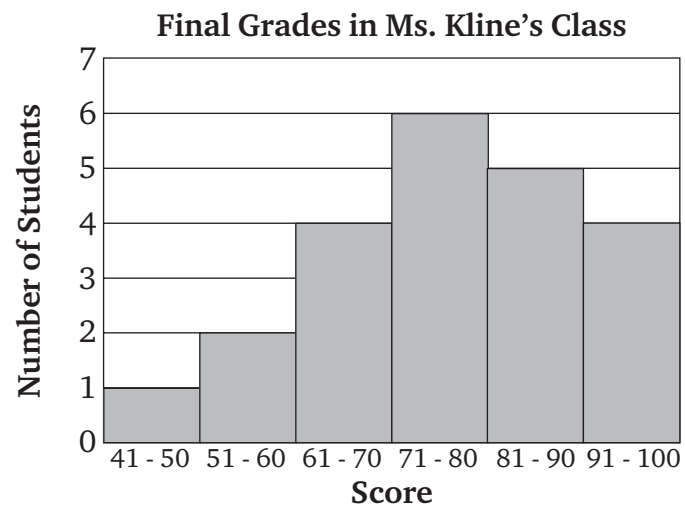
**YEARLY COMMISSION**

Salesperson	Commission
Tiffany	\$58,097
Zhen	\$59,523
Patrick	\$58,994
Althea	\$59,802
Jamel	\$99,556
Hassan	\$61,001
Juanita	\$59,175

What is the **median** of this data?

- A \$65,164
- B \$59,802
- C \$59,523
- D \$41,459

11. The histogram below shows the final grades students received in Ms. Kline's algebra class.



How many students in Ms. Kline's algebra class received a final score that was **greater than 70**?

- A 7
- B 15
- C 19
- D 22

12. Kacia collected shells on the beach every day for one week. She wrote the number of shells she collected each day in the table below.

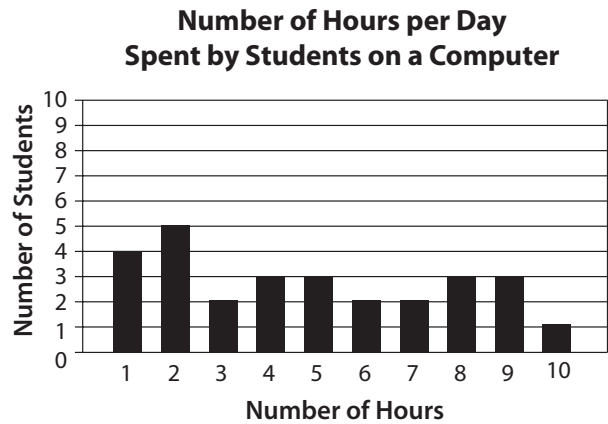
**KACIA'S SHELL COLLECTION**

Day	Number of Shells
Monday	30
Tuesday	21
Wednesday	44
Thursday	30
Friday	47
Saturday	?
Sunday	39

If the **mean** number of shells Kacia collected was 38, how many shells did Kacia collect on Saturday?

- A 26
- B 30
- C 38
- D 55

Use the bar graph below to answer question 13.



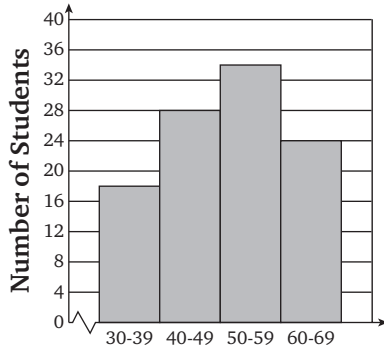
13. What is the **mode** of the number of hours per day spent by students on a computer?

- A 1 hour
- B 2 hours
- C 3 hours
- D 5 hours



14. The principal at Woodsfield Elementary recorded the heights of some of the students in the histogram below.

**Student Heights at Woodsfield Elementary School**

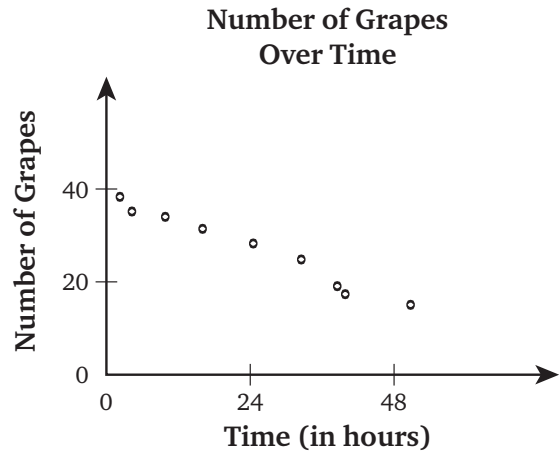


Height of Students (in inches)

How many **more** students are 50–59 inches tall than students who are 30–39 inches tall?

- A 6
- B 10
- C 14
- D 16

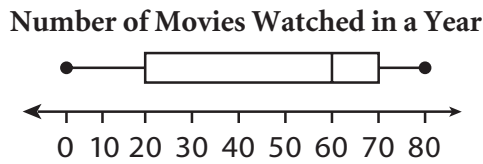
15. The following scatter plot represents the number of grapes in a bowl over time.



Which statement **best** describes the relationship between the number of grapes in the bowl and time, as shown on the scatter plot?

- A As time increases, the number of grapes in the bowl decreases.
- B As time increases, the number of grapes in the bowl increases.
- C As time increases, the number of grapes in the bowl remains the same.
- D There is no relationship between the number of grapes in the bowl and time.

Use the box-and-whisker plot below to answer question 16.



16. According to the box-and-whisker plot, what is the **range** of the number of movies watched in a year?

- A 20
- B 50
- C 60
- D 80

17. Johann recorded the temperature on the first day of each month for six months in the table below.

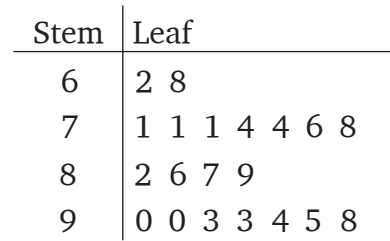
TEMPERATURE

Month	Temperature
January	6°C
February	9°C
March	13°C
April	17°C
May	17°C
June	?

If the **range** of recorded temperatures from January through June is 16°C, what was the temperature that Johann recorded on the first day in June?

- A 10°C
- B 11°C
- C 17°C
- D 22°C

Use the stem-and-leaf plot below to answer question 18.

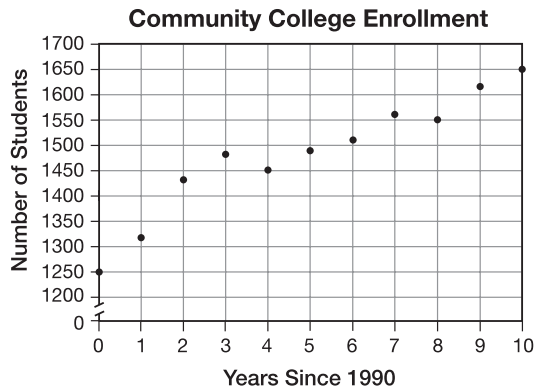


Key: 8 | 6 = 86

18. What is the **mean** of the data in the stem-and-leaf plot?

- A 4.1
- B 36.0
- C 71.0
- D 82.1

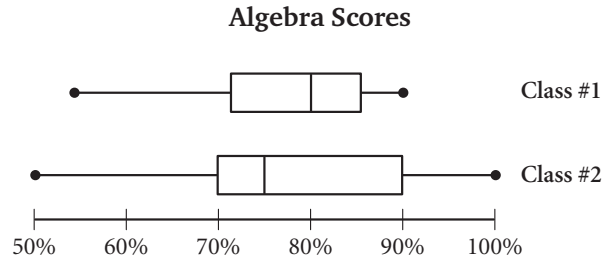
19. The scatter plot below represents the number of students enrolled in a local community college over time.



Which statement **best** describes the relationship between the number of students enrolled at the college and time, as shown on the scatter plot?

- A As time increases, the number of students enrolled at the college increases.
- B As time increases, the number of students enrolled at the college decreases.
- C As time increases, the number of students enrolled at the college stays the same.
- D There is no relationship between the number of students enrolled at the college and time.

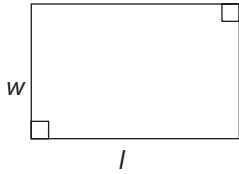
20. The box-and-whisker plots below show the algebra test scores for two separate classes. Which of the statements about the plots is **true**?



- A The highest-scoring student is in Class #2.
- B The median score of Class #2 is higher than the median score of Class #1.
- C The median score of Class #2 is 80%.
- D The lowest-scoring student is in Class #1.

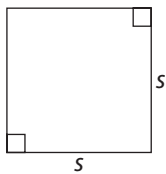
# Mathematics Reference Sheet

You may use the calculator  $\pi$  or the number 3.14.

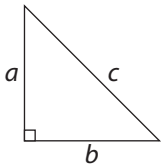


$$P = 2l + 2w$$

$$A = lw$$

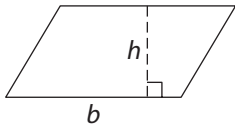


$$A = s \cdot s$$

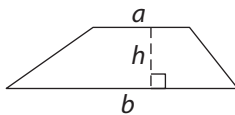


Pythagorean  
Theorem:

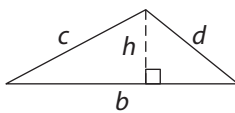
$$a^2 + b^2 = c^2$$



$$A = bh$$

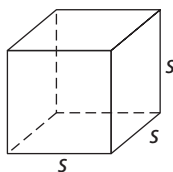


$$A = \frac{1}{2}h(a + b)$$



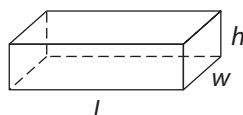
$$P = b + c + d$$

$$A = \frac{1}{2}bh$$



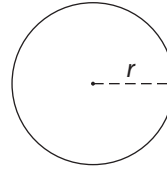
$$SA = 6s^2$$

$$V = s \cdot s \cdot s$$



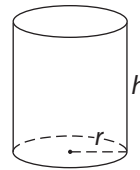
$$SA = 2lw + 2lh + 2wh$$

$$V = lwh$$

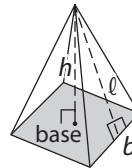


$$C = 2\pi r$$

$$A = \pi r^2$$



$$V = \pi r^2 h$$



$$V = \frac{1}{3}(\text{Area of the base}) \times h$$

## Metric Conversions:

- 1 kilometer = 1000 meters
- 1 hectometer = 100 meters
- 1 dekameter = 10 meters
- 1 meter
- 1 decimeter = 0.1 meter
- 1 centimeter = 0.01 meter
- 1 millimeter = 0.001 meter

## Customary Conversions:

- 1 yard (yd) = 3 feet
- 1 foot = 12 inches (in.)
- 1 pound = 16 ounces (oz.)
- 1 gallon (gal) = 4 quarts (qt)
- 1 quart = 2 pints (pt)
- 1 pint = 2 cups (c)
- 1 cup = 8 fluid ounces
- 1 day = 24 hours (hr)
- 1 hour = 60 minutes (min)
- 1 minute = 60 seconds (sec)



**This is the end of the test.**

**You may go back to check your work  
or answer questions you did not complete.**









**Answer Key**  
**Grade 7 Math Benchmark 1**

<b>Item Number</b>	<b>Correct Answer</b>	<b>Standard Measured</b>	<b>Anchor/Eligible Content Measured</b>
1	C	2.2.8.B	M7.A.3.1.1
2	B	2.2.8.B	M7.A.3.2.1
3	A	2.6.8.E	M7.E.1.1.1
4	D	2.6.5.B	M7.E.2.1.1
5	B	2.6.5.E	M7.E.1.1.1
6	C	2.6.8.E	M7.E.2.1.1
7	C	2.6.5.B	M7.E.2.1.1
8	B	2.6.8.E	M7.E.1.1.1
9	C	2.6.5.A	M7.E.1.1
10	C	2.6.5.B	M7.E.2.1.1
11	B	2.6.5.E	M7.E.1.1.1
12	D	2.6.5.B	M7.E.2.1
13	B	2.6.5.B	M7.E.2.1.1
14	D	2.6.5.E	M7.E.1.1.1
15	A	2.6.8.C	M7.E.4.1
16	D	2.6.8.E	M7.E.2.1.1
17	D	2.6.5.B	M7.E.2.1.1
18	D	2.6.8.E	M7.E.2.1.1
19	A	2.6.8.C	M7.E.4.1
20	A	2.6.8.A	M7.E.4.1