

Category 3 Averages

1. What is the average (arithmetic mean) of the numbers 15, 16, 17, 17, 18, and 19?
- (A) 14.2
(B) 16.5
(C) 17
(D) 17.5
(E) 18
2. If n red pencils cost 10 cents each and m blue pencils cost 9 cents each, what is the average (arithmetic mean) cost, in cents, per pencil?
- (A) $\frac{19(n+m)}{2}$
(B) $\frac{10n+9m}{19}$
(C) $\frac{10n+9m}{n+m}$
(D) $\frac{n+m}{2}$
(E) $\frac{19}{n+m}$
3. If the average (arithmetic mean) of a, b , and c is 40, what is the average (arithmetic mean) of $(3a+10), (3b+10)$, and $(3c+10)$?
- (A) 50
(B) 70
(C) 130
(D) 150
(E) It cannot be determined from the information given.

4. The cost of item A is $\frac{y}{2}$ each and the cost of item B is $\frac{t}{3}$ each. What is the average (arithmetic mean) cost per unit of a collection consisting of x units of A and k units of B ?
- (A) $\frac{3y + 2t}{12}$
- (B) $\frac{(x + k) + (3y + 2t)}{12}$
- (C) $\frac{3xy + 2kt}{x + k}$
- (D) $\frac{3xy + 2kt}{6}$
- (E) $\frac{3xy + 2kt}{6(x + k)}$
5. If each of 4 subsidiaries of Corporation R has been granted a line of credit of \$700,000 and each of the other 3 subsidiaries of Corporation R has been granted a line of credit of \$112,000, what is the average (arithmetic mean) line of credit granted to a subsidiary of Corporation R ?
- (A) \$1,568,000
- (B) \$448,000
- (C) \$406,000
- (D) \$313,600
- (E) \$116,000
6. What is the average (arithmetic mean) of 8 numbers if the average of 5 of the numbers is 24 and the sum of the remaining 3 numbers is 40?
- (A) 8
- (B) 20
- (C) 29
- (D) 30
- (E) 37.5

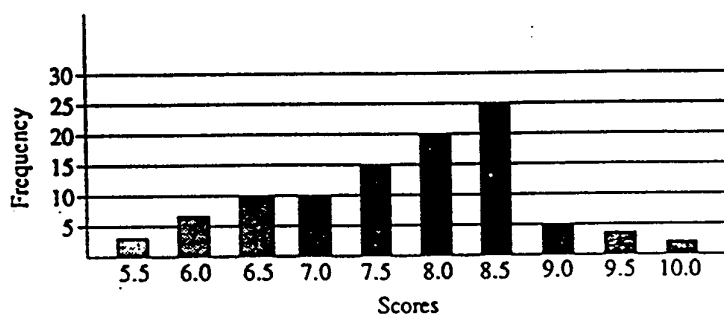
7. A manager's annual salary is \$8,400 greater than the annual salary of each of two assistant managers, who earn x dollars each per year. The average (arithmetic mean) of the 3 annual salaries, in dollars, is
- (A) $x + 2,800$
(B) $x + 4,200$
(C) $2x + 2,800$
(D) $\frac{2x + 8,400}{3}$
(E) $\frac{3x + 8,400}{2}$
8. If the average (arithmetic mean) of the four numbers K , $2K + 3$, $3K - 5$, and $5K + 1$ is 63, what is the value of K ?
- (A) 11
(B) $15\frac{3}{4}$
(C) 22
(D) 23
(E) $25\frac{3}{10}$
9. The average (arithmetic mean) of 10, 30, and 50 is 5 more than the average of 20, 40, and
- (A) 15
(B) 25
(C) 35
(D) 45
(E) 55

10. A total of \$2,000 was spent for a 30-day vacation. If transportation expenses were \$230, lodging was \$750, and exactly \$20 was spent per day for meals and tips, what was the average (arithmetic mean) amount per day that was spent on other expenses?
- (A) \$66
(B) \$42
(C) \$33
(D) \$20
(E) \$14
11. In a certain company, the total monthly payroll for the 12 production workers is \$18,000 and the total monthly payroll for the 36 office workers is \$63,000. By how much does the average (arithmetic mean) monthly salary of an office worker exceed that of a production worker in this company?
- (A) \$62.50
(B) \$187.50
(C) \$250.00
(D) \$375.00
(E) \$500.00
12. On a certain test, 3 students each had a score of 90, 9 students each had a score of 80, 4 students each had a score of 70, and 4 students each had a score of 60. What was the average (arithmetic mean) score for the 20 students?
- (A) 70.5
(B) 75.0
(C) 75.5
(D) 80.0
(E) 80.5

<High Level Questions>

13. On 3 sales John has received commissions of \$240, \$80, and \$110, and he has 1 additional sale pending. If John is to receive an average (arithmetic mean) commission of exactly \$150 on the 4 sales, then the 4th commission must be.
- (A) \$164
(B) \$170
(C) \$175
(D) \$182
(E) \$185

14. The 10 households on a certain street have household incomes that range from \$34,000 to \$150,000 and an average (arithmetic mean) household income of \$60,000. If the household with the highest income and the one with the lowest income are excluded, what is the average household income for the remaining 8 households?
- (A) \$41,600
(B) \$47,000
(C) \$52,000
(D) \$61,000
(E) \$75,000



15. The graph above shows the distribution of the 100 scores in a certain competition. What is the median score for the competition?
- (A) 7.5
(B) 7.75
(C) 8.0
(D) 8.25
(E) 8.5

16. A certain elevator has a safe weight limit of 2,000 pounds. What is the greatest possible number of people who can safely ride on the elevator at one time with the average (arithmetic mean) weight of half the riders being 180 pounds and the average weight of the others being 215 pounds?
- (A) 7
(B) 8
(C) 9
(D) 10
(E) 11
17. For the month of April, the average (arithmetic mean) of the daily high temperatures recorded at a certain weather station was x degrees. If the average for the first 13 days of the month was $(x - 10)$ degrees, what was the average, in degrees, for the remaining 17 days of the month?
- (A) $x + 10$
(B) $17x + 130$
(C) $\frac{130x + 17}{x}$
(D) $\frac{17x + 10}{17}$
(E) $\frac{17x + 130}{17}$
18. A statistician calculated the average (arithmetic mean) for 20 measurements to be 50. On rechecking the calculations, the statistician found that a measurement of "78" had been treated as "18" and a measurement of "40" had been treated as "50". If no other errors were made, what is the correct average for the 20 measurements?
- (A) 47.5
(B) 50.0
(C) 51.0
(D) 52.5
(E) 53.5

19. If k is an integer and $15 < k < 25$, which of the following could be the average (arithmetic mean) of 12, 14, 17, 23, and k ?

(A) 13.2
(B) 15.6
(C) 16.8
(D) 18.2
(E) 19.5

20. In performing a sequence of experiments, a scientist made 20 measurements. The average (arithmetic mean) of these measurements was 34. For security reasons the scientist coded the data by multiplying each of the measurements by 10 and then adding 40 to each product. What is the average of the coded measurements?

(A) 1,140
(B) 380
(C) 342
(D) 57
(E) 19

21. The average (arithmetic mean) of n numbers is equal to $\frac{1}{3}$ the sum of the n numbers.

If $\frac{1}{2}$ the sum of the numbers is 15, what is the average of the n numbers?

(A) 3
(B) 5
(C) 10
(D) 30
(E) 45

22. The average (arithmetic mean) of ten numbers on a list is m . If the numbers 10 and 24 are added to the list, the average (arithmetic mean) of these twelve numbers on the list is also m . What is the value of m ?
- (A) $11\frac{1}{3}$
(B) 14
(C) 17
(D) 20
(E) It cannot be determined from the information given.
23. The average (arithmetic mean) price of the 5 houses on a certain street is \$60,000. If the price of the least expensive house is \$55,000 which of the following could NOT be the price of the most expensive house?
- (A) \$82,000
(B) \$78,000
(C) \$72,000
(D) \$65,000
(E) \$62,500
24. If the average (arithmetic mean) of x and y is 60 and the average (arithmetic mean) of y and z is 80, what is the value of $z - x$?
- (A) 70
(B) 40
(C) 20
(D) 10
(E) It cannot be determined from the information given.

Mon	Tue	Wed	Thu	Fri
$+2\frac{1}{2}$	$-1\frac{1}{4}$	$-\frac{1}{8}$	0	$+1\frac{3}{8}$

25. The table above shows the net change, in dollars, in the price of a share of a certain stock each day last week. What was the average (arithmetic mean) daily net change, in dollars, for the 5-day week?

(A) $-\frac{1}{2}$ (B) $+\frac{1}{4}$ (C) $+\frac{1}{2}$ (D) $+\frac{5}{4}$ (E) $+\frac{5}{2}$

26. If the average (arithmetic mean) of 5 positive temperatures is x degrees Fahrenheit, then the sum of the 3 greatest of these temperatures, in degree Fahrenheit, could be

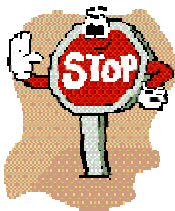
(A) $6x$
 (B) $4x$
 (C) $\frac{5x}{3}$
 (D) $\frac{3x}{2}$
 (E) $\frac{3x}{5}$

Score	Number of Students
83	5
70	6
92	3
	5
64	1

27. The incomplete table above shows a distribution of scores for a class of 20 students. If the average (arithmetic mean) score for the class is 78, what score is missing from the table?

(A) 73
 (B) 75
 (C) 77
 (D) 79
 (E) 81

28. If x is the average (arithmetic mean) of 5 consecutive even integers, which of the following must be true?
- I. x is an even integer.
 - II. x is a nonzero integer.
 - III. x is a multiple of 5.
- (A) I only
(B) III only
(C) I and II only
(D) I and III only
(E) I, II, and III
29. The average (arithmetic mean) of 4 positive integers is 50. If the average of 2 of these integers is 45, what is the greatest possible value that one of the other 2 integers can have?
- (A) 55
(B) 65
(C) 100
(D) 109
(E) 115
30. The trade name for a product has 6 letters, and the length of the package for the product is ℓ centimeters. The trade name of the product is printed lengthwise on one side of the package with a margin of m centimeters on each end of the side. If the space between each letter is considered negligible, what is the average (arithmetic mean) width, in centimeters, of each letter in the trade name?
- (A) $\ell - 2m$
(B) $\ell - m$
(C) $\ell \div 8$
(D) $(\ell - m) \div 6$
(E) $(\ell - 2m) \div 6$





Category 3 Average

1. What is the average (arithmetic mean) of the numbers 15, 16, 17, 17, 18, and 19?

- (A) 14.2
 (B) 16.5
 (C) 17
 (D) 17.5
 (E) 18

$$\frac{15 + 16 + 17 + 17 + 18 + 19}{6} = 17,$$

» (C) »

2. If n red pencils cost 10 cents each and m blue pencils cost 9 cents each, what is the average (arithmetic mean) cost, in cents, per pencil?

- (A) $\frac{19(n+m)}{2}$
 (B) $\frac{10n+9m}{19}$
 (C) $\frac{10n+9m}{n+m}$
 (D) $\frac{n+m}{2}$
 (E) $\frac{19}{n+m}$

$$\text{Combined Average} = \frac{N_1 A_1 + N_2 A_2}{N_1 + N_2}$$

n 10cents, m 9 cents ,

» (C) »

Point!

가 . N_1 , N_2
 (Combined Average)

3. If the average (arithmetic mean) of a, b , and c is 40, what is the average (arithmetic mean) of $(3a + 10), (3b + 10)$, and $(3c + 10)$?
- (A) 50
 (B) 70
 (C) 130
 (D) 150
 (E) It cannot be determined from the information given.

$$\frac{a+b+c}{3} = 40, \text{ then } \frac{(3a+10) + (3b+10) + (3c+10)}{3} = ?$$

$$a + b + c = 120$$

» (C) »

4. The cost of item A is $\frac{y}{2}$ each and the cost of item B is $\frac{t}{3}$ each. What is the average (arithmetic mean) cost per unit of a collection consisting of x units of A and k units of B ?

- (A) $\frac{3y + 2t}{12}$
 (B) $\frac{(x+k) + (3y+2t)}{12}$
 (C) $\frac{3xy + 2kt}{x+k}$
 (D) $\frac{3xy + 2kt}{6}$
 (E) $\frac{3xy + 2kt}{6(x+k)}$

$$N1(x) \quad A1\left(\frac{y}{2}\right), \quad N2(k) \quad A2\left(\frac{t}{3}\right)$$

Combined Average($N1$ $N2$)

$$= \frac{(N1 \times A1) + (N2 \times A2)}{N1 + N2} = \frac{(x \times \frac{y}{2}) + (k \times \frac{t}{3})}{x+k}$$

» (E) »

5. If each of 4 subsidiaries of Corporation R has been granted a line of credit of \$700,000 and each of the other 3 subsidiaries of Corporation R has been granted a line of credit of \$112,000, what is the average (arithmetic mean) line of credit granted to a subsidiary of Corporation R ?
- (A) \$1,568,000
 (B) \$448,000
 (C) \$406,000
 (D) \$313,600
 (E) \$116,000

Combined Average

!!

$$\frac{(N1 \times A1) + (N2 \times A2)}{N1 + N2} = \frac{(4 \times \$700,000) + (3 \times \$112,000)}{7} = \$448,000$$

» (B) »

6. What is the average (arithmetic mean) of 8 numbers if the average of 5 of the numbers is 24 and the sum of the remaining 3 numbers is 40?

- (A) 8
☒ (B) 20
 (C) 29
 (D) 30
 (E) 37.5

Combined Average

! 8

5

24

3

40

3

40/3

.

가

:

$$\frac{(5 \times 24) + (3 \times \frac{40}{3})}{8} = 20 \text{ (Average) ,}$$

» (B) »

7. A manager's annual salary is \$8,400 greater than the annual salary of each of two assistant managers, who earn x dollars each per year. The average (arithmetic mean) of the 3 annual salaries, in dollars, is

- ☒ (A) $x + 2,800$
 (B) $x + 4,200$
 (C) $2x + 2,800$
 (D) $\frac{2x + 8,400}{3}$
 (E) $\frac{3x + 8,400}{2}$

A manager's annual salary = \$ x (salary of each of two assistant managers) + \$8,400

$$\text{Average} = \frac{(x + \$8,400) + x + x}{3} = x + \$2,800,$$

» (A) »

8. If the average (arithmetic mean) of the four numbers K , $2K + 3$, $3K - 5$, and $5K + 1$ is 63, what is the value of K ?

- (A) 11
(B) $15\frac{3}{4}$
(C) 22
(D) 23
(E) $25\frac{3}{10}$

$$\frac{K + (2K + 3) + (3K - 5) + (5K + 1)}{4} = 63$$

$$K = 23,$$

» (D) »

9. The average (arithmetic mean) of 10, 30, and 50 is 5 more than the average of 20, 40, and

- (A) 15 (B) 25 (C) 35 (D) 45 (E) 55

$$\frac{10 + 30 + 50}{3} = 30 = 5 + \frac{20 + 40 + x}{3}$$

$$x$$

» (A) »

10. A total of \$2,000 was spent for a 30-day vacation. If transportation expenses were \$230, lodging was \$750, and exactly \$20 was spent per day for meals and tips, what was the average (arithmetic mean) amount per day that was spent on other expenses?

- (A) \$66
(B) \$42
(C) \$33
(D) \$20
(E) \$14

$$(\$2,000) - (\$230 + \$750 + (\$20 \times 30 \text{ days})) = \$420 (\text{other expenses})$$

$$\$420 \div 30 = \$14,$$

» (E) »

Tip : exactly \$20 was spent per day for meals and tips \$20
30 days .

11. In a certain company, the total monthly payroll for the 12 production workers is \$18,000 and the total monthly payroll for the 36 office workers is \$63,000. By how much does the average (arithmetic mean) monthly salary of an office worker exceed that of a production worker in this company?

(A) \$62.50
 (B) \$187.50
 (C) \$250.00
 (D) \$375.00
 (E) \$500.00

$$\text{12 production workers} = \frac{\$18,000}{12} = \$1,500$$

$$\text{36 office workers} = \frac{\$63,000}{36} = \$1,750$$

$$\$1,750 - \$1,500 = \$250,$$

» (C) »

12. On a certain test, 3 students each had a score of 90, 9 students each had a score of 80, 4 students each had a score of 70, and 4 students each had a score of 60. What was the average (arithmetic mean) score for the 20 students?

(A) 70.5
 (B) 75.0
 (C) 75.5
 (D) 80.0
 (E) 80.5

$$\text{Combined Average} = \frac{(3 \times 90) + (9 \times 80) + (4 \times 70) + (4 \times 60)}{3 + 9 + 4 + 4} = 75.5,$$

» (C) »

<High Level Questions >

13. On 3 sales John has received commissions of \$240, \$80, and \$110, and he has 1 additional sale pending. If John is to receive an average (arithmetic mean) commission of exactly \$150 on the 4 sales, then the 4th commission must be.

(A) \$164 (B) \$170 (C) \$175 (D) \$182 (E) \$185

$$\frac{240 + 80 + 110 + x}{4} = \$150, \quad x = \$170$$

» (B) »

14. The 10 households on a certain street have household incomes that range from \$34,000 to \$150,000 and an average (arithmetic mean) household income of \$60,000. If the household with the highest income and the one with the lowest income are excluded, what is the average household income for the remaining 8 households?

(A) \$41,600 (B) \$47,000 (C) \$52,000 (D) \$61,000 (E) \$75,000

$$\frac{\$34,000 + (8 \text{ households}) + \$150,000}{10} = \$60,000.$$

가

8 households income = \$416,000,

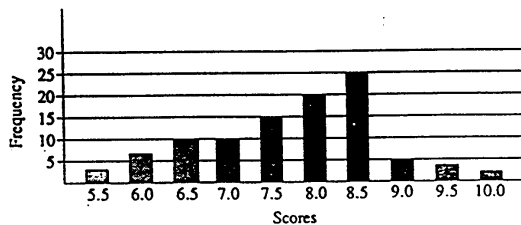
8

\$52,000.

!

»

(C) »



15. The graph above shows the distribution of the 100 scores in a certain competition. What is the median score for the competition?

(A) 7.5 (B) 7.75 (C) 8.0 (D) 8.25 (E) 8.5

median()

(x_n)

scores,

frequency()

frequency 100

median 50

. 가

score

10.0 frequency

$$2(10.0) + 4(9.5) + 5(9.0) + 25(8.5) \approx 36$$

score 8.0 frequency 20

50 frequency

score 8.0

»

(C) »

16. A certain elevator has a safe weight limit of 2,000 pounds. What is the greatest possible number of people who can safely ride on the elevator at one time with the average (arithmetic mean) weight of half the riders being 180 pounds and the average weight of the others being 215 pounds?

(A) 7 (B) 8 (C) 9 (D) 10 (E) 11

R

$$\frac{R}{2} 180 \text{ pounds} + \frac{R}{2} 215 \text{ pounds} \approx 2,000 \text{ pounds,}$$

R

10

» (D) »

17. For the month of April, the average (arithmetic mean) of the daily high temperatures recorded at a certain weather station was x degrees. If the average for the first 13 days of the month was $(x - 10)$ degrees, what was the average, in degrees, for the remaining 17 days of the month?

(A) $x + 10$ (B) $17x + 130$ (C) $\frac{130x + 17}{x}$ (D) $\frac{17x + 10}{17}$ (E) $\frac{17x + 130}{17}$

$$\frac{13(x - 10) + 17y}{30} = x, \quad \text{in terms of } x \quad y$$

» (E) »

18. A statistician calculated the average (arithmetic mean) for 20 measurements to be 50. On rechecking the calculations, the statistician found that a measurement of "78" had been treated as "18" and a measurement of "40" had been treated as "50". If no other errors were made, what is the correct average for the 20 measurements?

(A) 47.5 (B) 50.0 (C) 51.0 (D) 52.5 (E) 53.5

$$\begin{aligned} & 20 \times 50 = 1000 \\ & 18 \times 18 = 324 \\ & 40 \times 50 = 2000 \\ & 78 \times 18 = 1404 \\ & 50 \times 20 = 1000 \\ & 52.5 \times 20 = 1050 \end{aligned}$$

» (D) »

19. If k is an integer and $15 < k < 25$, which of the following could be the average (arithmetic mean) of 12, 14, 17, 23, and k ?

(A) 13.2
(B) 15.6
(C) 16.8
(D) 18.2
(E) 19.5

$$\begin{aligned} & 12, 14, 17, 23 \quad 66 \quad K \quad 5 \\ & 81(=66+15) < \text{sum} < 91(=66+25) \quad 81 \quad 91 \quad 5 \\ & 16.2 < \text{average} < 18.2, \\ & 16.8 \end{aligned}$$

» (C) »

20. In performing a sequence of experiments, a scientist made 20 measurements. The average (arithmetic mean) of these measurements was 34. For security reasons the scientist coded the data by multiplying each of the measurements by 10 and then adding 40 to each product. What is the average of the coded measurements?

(A) 1,140 (B) 380 (C) 342 (D) 57 (E) 19

$$\frac{\text{sum}}{20} = 34(\text{average}) \quad 20 \times 34 = 680$$

$$\text{measurement} \quad 10 \quad 680 \quad 10 \quad 6800$$

$$\text{measurement} \quad 40 \quad 40 \times 20 = 800 \quad 6800$$

$$800 \quad 20 \quad 7600 \div 20 = 380.$$

» (B) »

21. The average (arithmetic mean) of n numbers is equal to $\frac{1}{3}$ the sum of the n numbers.

If $\frac{1}{2}$ the sum of the numbers is 15, what is the average of the n numbers?

(A) 3 (B) 5 (C) 10 (D) 30 (E) 45

$$\text{Average} = \frac{\text{sum}}{n} = \frac{1}{3} \text{sum}, \quad n = 3 \quad \frac{1}{2} \text{ the sum of the numbers is}$$

$$15 \quad \text{the sum of number} = 30, \quad n \quad \frac{30}{3} = 10$$

» (C) »

22. The average (arithmetic mean) of ten numbers on a list is m . If the numbers 10 and 24 are added to the list, the average (arithmetic mean) of these twelve numbers on the list is also m . What is the value of m ?

(A) $11\frac{1}{3}$ (B) 14 (C) 17 (D) 20
(E) It cannot be determined from the information given.

$$\frac{\text{sum}}{10} = m = \frac{\text{sum} + 34}{12}, \quad \text{sum} = m$$

$$\textcircled{1} \text{sum} = 10m, \quad \textcircled{2} \text{sum} = 12m - 34 \Rightarrow 10m = 12m - 34 \quad m = 17$$

» (C) »

23. The average (arithmetic mean) price of the 5 houses on a certain street is \$60,000. If the price of the least expensive house is \$55,000 which of the following could NOT be the price of the most expensive house?

(A) \$82,000 (B) \$78,000 (C) \$72,000 (D) \$65,000 (E) \$62,500

$$\frac{5 \text{ houses}}{5} = \$60,000, \quad \text{가} \quad \text{sum} \quad \$300,00 \quad . \quad \text{가} \quad \text{가}$$

$$\$55,000 \quad . \quad \text{가} \quad \text{가} \quad \text{가}$$

$$\$55,000 \quad \text{가} \quad \text{가} \quad 4 \times \$55,000 = \$220,000. \quad \$300,00 \quad \$220,000$$

$$\text{가} \quad \$80,000 \quad . \quad \$80,000$$

» (A) »

24. If the average (arithmetic mean) of x and y is 60 and the average (arithmetic mean) of y and z is 80, what is the value of $z - x$?

(A) 70 (B) 40 (C) 20 (D) 10
(E) It cannot be determined from the information given.

$$\frac{x + y}{2} = 60, \frac{y + z}{2} = 80 \Rightarrow x + y = 120, y + z = 160$$

$$z - x = 40$$

» (B) »

Mon	Tue	Wed	Thu	Fri
$+2\frac{1}{2}$	$-1\frac{1}{4}$	$-\frac{1}{8}$	0	$+1\frac{3}{8}$

25. The table above shows the net change, in dollars, in the price of a share of a certain stock each day last week. What was the average (arithmetic mean) daily net change, in dollars, for the 5-day week?

(A) $-\frac{1}{2}$ (B) $+\frac{1}{4}$ (C) $+\frac{1}{2}$ (D) $+\frac{5}{4}$ (E) $+\frac{5}{2}$

$$\text{가} \quad .$$

$$5 \quad \text{net change} \quad 5 \quad .$$

» (C) »

26. If the average (arithmetic mean) of 5 positive temperatures is x degrees Fahrenheit, then the sum of the 3 greatest of these temperatures, in degree Fahrenheit, could be

(A) $6x$ (B) $4x$ (C) $\frac{5x}{3}$ (D) $\frac{3x}{2}$ (E) $\frac{3x}{5}$

$\frac{(a+b+c)+d+e}{5} = x \Rightarrow (a+b+c)+d+e = 5x$ $a+b+c$.
 d e 가 0 (, 0
 0 가) $(a+b+c)+d+e = 5x$ $a+b+c <$
 $5x$. $a+b+c$ $5x$
 $\cdot 5x$ 가 (B) .
 ▶▶ (B) ▶▶

Score	Number of Students
83	5
70	6
92	3
	5
64	1

27. The incomplete table above shows a distribution of scores for a class of 20 students. If the average (arithmetic mean) score for the class is 78, what score is missing from the table?

(A) 73 (B) 75 (C) 77 (D) 79 (E) 81

$20 \text{ students} \times 78 (\text{average}) = 15 \times 60 = 83 \times 5 + 70 \times 6 + 92 \times 3 + x \times 5 + 64 \times 1$
 $5x = 385 \rightarrow x = 77$

▶▶ (C) ▶▶

28. If x is the average (arithmetic mean) of 5 consecutive even integers, which of the following must be true?

I. x is an even integer.

II. x is a nonzero integer.

III. x is a multiple of 5.

(A) I only (B) III only (C) I and II only (D) I and III only
 (E) I, II, and III

가 even integer n $x = \frac{n+(n+2)+(n+4)+(n+6)+(n+8)}{5} = n+4$
 $x = n+4$, n “ + = ” I
 true . II $n = -4$ false .

▶▶ (A) ▶▶

29. The average (arithmetic mean) of 4 positive integers is 50. If the average of 2 of these integers is 45, what is the greatest possible value that one of the other 2 integers can have?

(A) 55
(B) 65
(C) 100
(D) 109
(E) 115

$$4 \times 50 = 200$$

$$2 \times 45 = 90$$

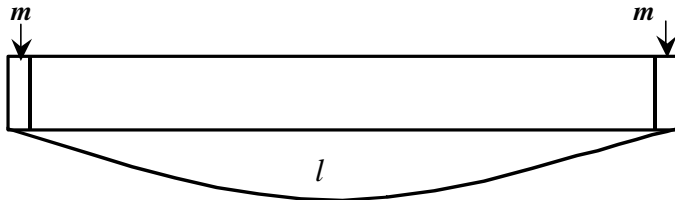
$$200 - 90 = 110$$

$$110 - 1 = 109$$

(D)

30. The trade name for a product has 6 letters, and the length of the package for the product is ℓ centimeters. The trade name of the product is printed lengthwise on one side of the package with a margin of m centimeters on each end of the side. If the space between each letter is considered negligible, what is the average (arithmetic mean) width, in centimeters, of each letter in the trade name?

(A) $\ell - 2m$ (B) $\ell - m$ (C) $\ell \div 8$ (D) $(\ell - m) \div 6$ (E) $(\ell - 2m) \div 6$



$$\text{width} = (\ell - 2m) \div 6$$

(E)