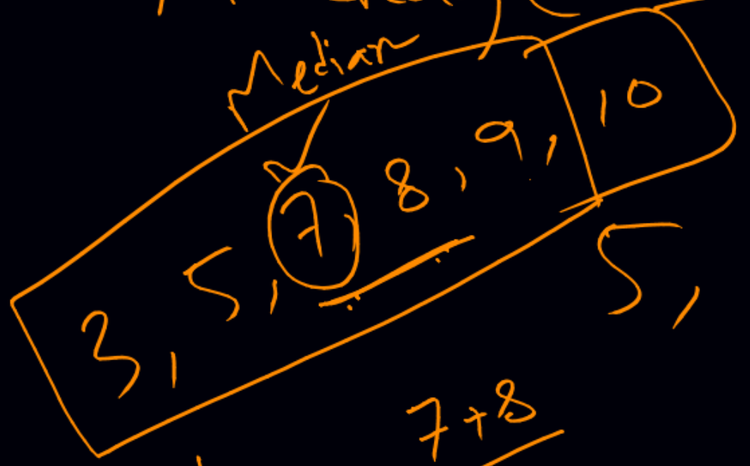
8, 7, 5, 3, 9

$$\text{Average} = \frac{\text{Sum}}{\text{Number}}$$

Median

Mode



$\frac{n+1}{2}$

$= \frac{5+1}{2}$

$= 3$

$\frac{7+8}{2}$

$= 7.5$

5, 8, 10, 11, 13

$= \frac{37}{5} = 9.4$

1, 1, 2, 3, 3, 3, 4

3

01) The average weight of 3 men is 53 kg. None of them weighs less than 51 kg. What is the maximum possible weight (in kg) of a person in that group?

A) 53 B) 55 C) 57 D) 59 E) None of these

$51 + 51 + 57 = 159 - 102$

$= 57$

$\text{Average} = \frac{\text{Sum}}{\text{Number}}$

$\text{Sum} = 53 \times 3$

$= 159$

02) Two cartons weigh (3x - 2) kgs and (2x - 3) kgs respectively. If the average cartons is 10 kgs, the heavier carton weighs how many kgs more than the lighter carton?

A) 2 B) 4 C) 5 ~~D) 6~~ E) 10

$$\underset{3\times5-2}{\overset{13}{(3x-2)}} + \underset{2\times5-3}{\overset{7}{(2x-3)}} = 2\times10$$

$13-7=6$

$$\Rightarrow 3x-2+2x-3=20$$

$$\Rightarrow 5x=25$$

$$\therefore x=5$$

03) Average of P numbers is x and average of N numbers is y. Find average of all the numbers?

A) $\frac{x+y}{P+N}$ B) $\frac{x+y}{2}$ C) $\frac{Px+Ny}{P+N}$ D) $\frac{Px+Ny}{xy(P+N)}$ E) x + y

$$\frac{Px + Ny}{P+N}$$

04) A garments worker is paid d Takas per hour for the first 8 hours she works in a day. For every hour after the first 8 hours, she is paid c Takas per hour. If she works 12 hours in one day, what is her average hourly wage for that day?

A) $\frac{2d+C}{3}$ B) 8d+4c C) $\frac{8d+12C}{12}$ D) $\frac{4d+8C}{12}$ E) d+ $\left(\frac{1}{3}\right)$ c

$12 \rightarrow \frac{8d + 4c}{12}$

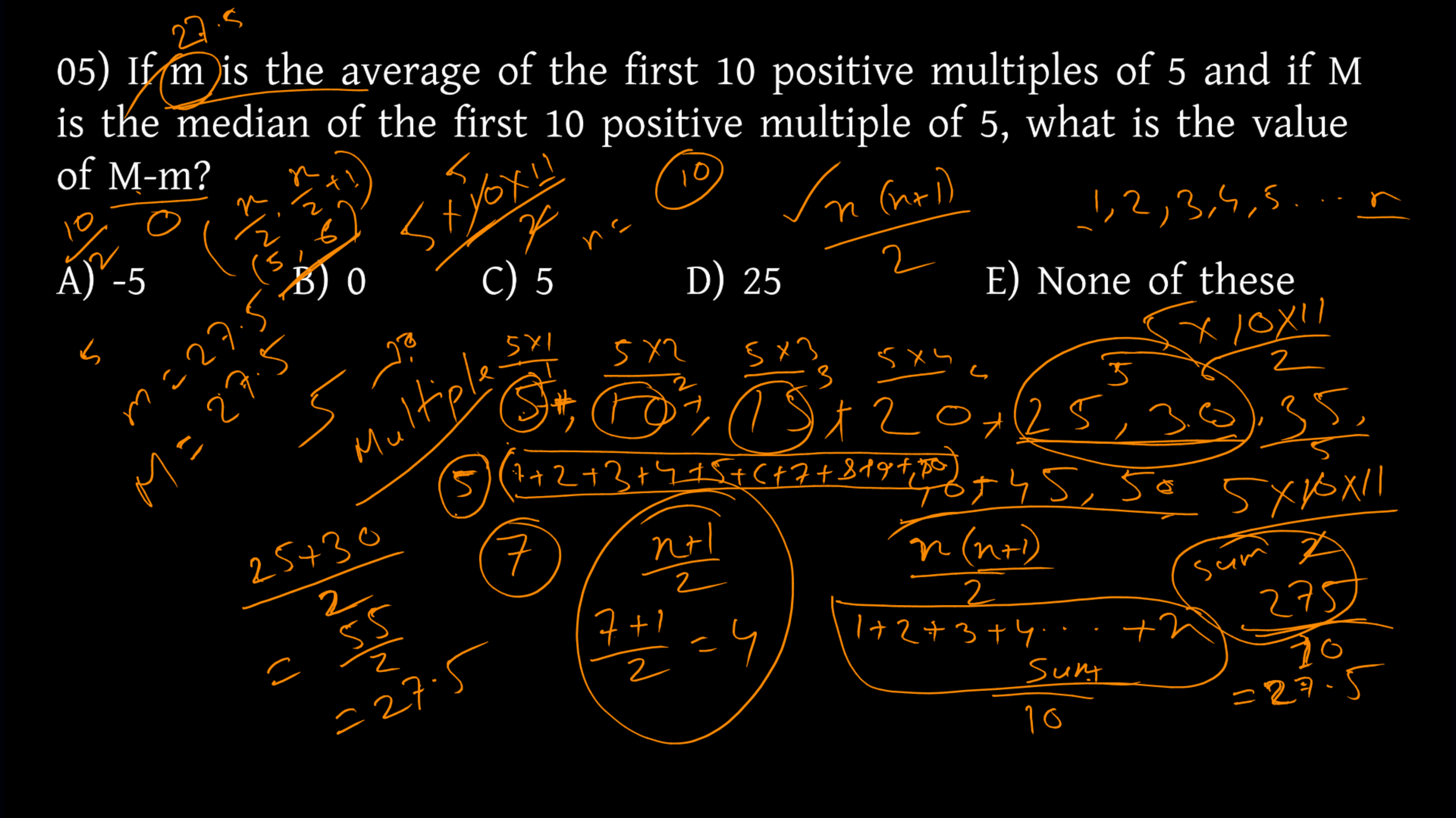
$15 \rightarrow \frac{8d+7c}{15}$

$= \frac{4(2d+c)}{12}$

$= \frac{2d+c}{3}$

05) If m is the average of the first 10 positive multiples of 5 and if M is the median of the first 10 positive multiple of 5, what is the value of M-m?

A) -5 B) 0 C) 5 D) 25 E) None of these



06) Rahim averaged 70 in his first m number of exams. After taking n more exams, he had an overall average of 75. In terms of m and n, his average for the last n exams was?

A) (5m + 75) / n

B) (5m / n) + 75

C) (5n / m) + 75

D) (70m + 75n) / (m + n)

E) None of these

Total number in m exams

70m

$$75 = \frac{70m}{m} + \frac{\text{Total number in } x \text{ exam}}{m+n}$$

$$\Rightarrow nx = 75n + 5m$$

$$\Rightarrow x = \frac{75n+5m}{n}$$

$$= \frac{75n}{n} + \frac{5m}{n} \Rightarrow 75 + \frac{5m}{n}$$

$$75 = \frac{70m + nx}{m+n}$$

$$75m + 75n = 70m + nx$$

$$75 \quad \frac{m+n}{n} \quad x$$

$$\sqrt{nx}$$

07) In a particular course, Arif appeared in 10 quizzes. The average of his best 9 quizzes is 10% more than the average of all the quizzes he attended. The total marks obtained in best 9 quizzes is what percent of the total marks obtained in 10 courses?

A) 80% B) 88% C) 90% D) 99% E) none of these

10 Average → 100

9 10% Best 9 110

Total = 100×10 = 1000

110×9 = 990

$\frac{990}{1000} \times 100\% = 99\%$

08) The age of the father of two children is twice that of the elder one added to four times that of the youngest one. If the arithmetic mean and product of the ages of the two children is 8 years and 48 years respectively, then what is the age of the father?

A) 48 years
B) 32 years
C) 40 years
D) 42 years
E) None of these

F E Y

$\frac{E+Y}{2} = 8$

$\Rightarrow E+Y = 16$

$EY = 48$

$F = 2E + 4Y$

$= 2 \times 12 + 4 \times 4$

$= 24 + 16$

$= 40$

09) The ratio of the current ages of Momen and his brother is 15:14. The ratio of the ages of Momen and his sister in 6 years will be 18:19. The gap between Momens age and his sister is the same as the gap between Momens age and his brother. What is Momens current age?

A) 26 B) 28 C) 30

D) 34 E) cannot be determined

$S - M = M - B$

$\Rightarrow S = 2M - B$

$\frac{M}{B} = \frac{15}{14}$

$\Rightarrow B = \frac{14M}{15}$

$19M + 114 = 36M - 18B + 108$

$\Rightarrow -17M = -18B + 108 - 114$

$\Rightarrow -17M = -18B - 6$

$\Rightarrow 17M = 18B + 6$

$= 6 \times \frac{14M}{15} + 6$

$\Rightarrow 17M = \frac{84M + 30}{5}$

$\Rightarrow 85M = 84M + 30$

$\Rightarrow M = 30$

10) Eight years ago, Zahed was twice as old as Zubair. At present, Zahed is 1.5 times as old as Zubair. Sixteen years from now, what will be the ratio of Zubair's age to Zahed's age?

A) 5:4 B) 6:5 C) 5:6 ~~D) 4:5~~ E) None of these

$Z.a = 1.5 \times Z.u$

$Za - 8 = 2(Zu - 8)$

$\Rightarrow 1.5Zu - 8 = 2Zu - 16$

$\Rightarrow 0.5Zu = 8$

$\therefore Zu = 16$

$16 + 16 = 32$

Za

$1.5 \times 16 = 24$

$24 + 16 = 40$

$\frac{32}{40} = \frac{4}{5}$

11) There were 35 students in a hostel. If the number of the students is increased by 7, then the expenses of the mess increase by Tk. 42 per day, while the average expenditure per head diminishes by Tk. 1. The original expenditure of the mess per day was

A) Tk. 400 B) Tk. 420 C) Tk.432

D) Tk.442 E) None of these

x Total

$35 \rightarrow 35x$

$x - 1 = \frac{35x+42}{35+7}$

$\Rightarrow 42x - 42 = 35x + 42$

$\Rightarrow 7x = 84$

$\therefore x = 12$

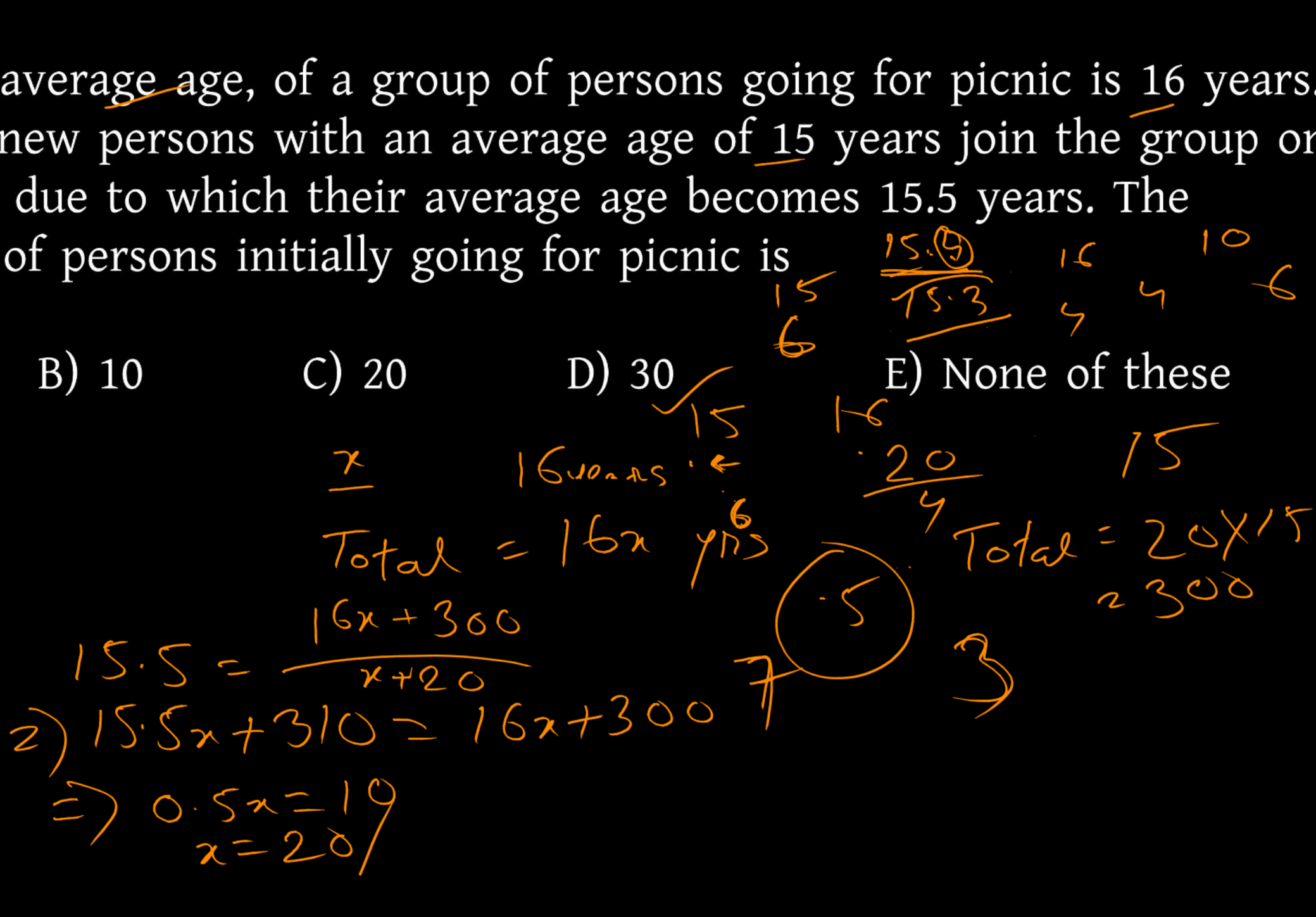
$= \frac{35x+42}{42}$

35×12

$= 420$

12) The average age, of a group of persons going for picnic is 16 years. Twenty new persons with an average age of 15 years join the group on the spot due to which their average age becomes 15.5 years. The number of persons initially going for picnic is

A) 5 B) 10 C) 20 D) 30 E) None of these



13) In a class with a certain number of students, if one student weighing 50 kg is added then the average weight of the class increases by 1 kg. If one more student weighing 50 kg is added, then the average weight of the class increases by 1.5 kg over the original average. What is the original average weight (in kg) of the class?

A) 2 B) 4 C) 46 D) 47 E) None of these

$$x+1 = \frac{10x+50}{10+1} \quad (x)$$

$$1.5+x = \frac{10x+50+50}{12}$$

14) The average weight of A, B and C is 40 kg. Weight of C is 24 kgs more than A's weight and 3 kg less than B's weight. What will be the average Weight of A, B, C and D, if D weights 15 kgs less than C?

A) 42 kgs B) 40 kgs C) 36 kgs

D) 38 kgs E) None of these

$A+B+C = 3 \times 40 = 120$

$C = A + 24 \Rightarrow A = C - 24 = 47 - 24 = 23$

$C = B - 3 \Rightarrow B = C + 3 = 47 + 3 = 50$

$\frac{C-24}{A} + \frac{C+3}{B} + C = 120$

$3C = 120 + 21 = 141$

$C = 47$

$D = 47 - 15 = 32$

$\frac{23+50+47+32}{4} = \frac{152}{4} = 38$

15) Total expenses of a boarding house are partly fixed and party varying linearly with the number of boarders. The average expense per boarder is TK. 700 where are 25 borders and TK.600 when there are 50 boarders. What is the average expense per boarder when there are 100 boarders?

A) TK. 540 B) TK. 550 C) TK. 570

D) TK. 580 E) 590

Fixed x Variable y

$x + 25y = 700 \times 25$

$x + 50y = 600 \times 50$

$x + 50 \times 500 = 30000$

$\Rightarrow x = 30000 - 25000$

$= 5000$

$x + 50y = 30000$

$x + 25y = 17500$

$25y = 12500$

$\therefore y = \frac{12500}{25} = 500$

$x + 100y$

$= 5000 + 100 \times 500$

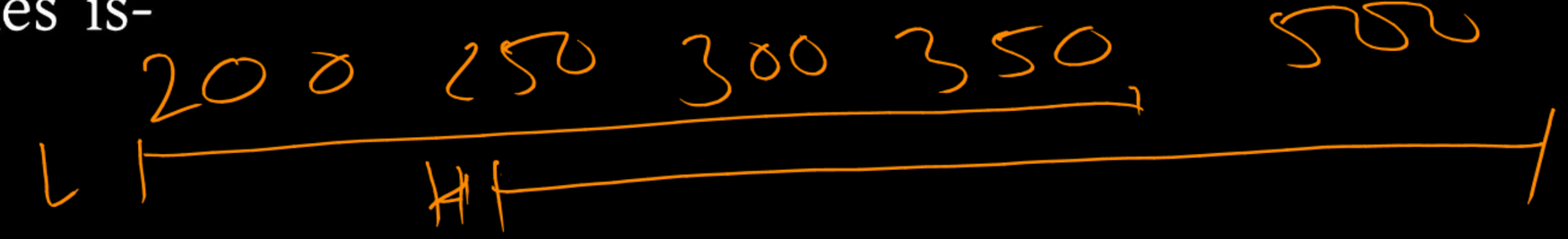
$= 55000$

550ϕ

1ϕ

550

16) (W**) There are five boxes in a cargo hold. The weight of the first box is 200 kg and the weight the second box is 20% more than the weight of the third box, whose weight is 25% more than the first box's weight. The fourth box at 350 kg is 30% lighter than the fifth box. The difference in the average weight of the four heaviest boxes and the four lightest boxes is-



A) 37.5 kg

B) 51.5 kg

C) 75 kg

D) 112.5 kg

E) 121.5 kg

$\Rightarrow 350 = F \times 0.7$

$F = \frac{350}{0.7} = 500$

$B = 1.2C$

$= 1.2 \times 250$

$= 300$

$\frac{350}{7}$