Problems on Average

Average

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Placement for All.. All for Placement

This Video Completely covers the problems on Average which is more than sufficient for all kind of placement Exams eg: TCS/WIPRO/AMCAT/ELITMUS/CoCubes and all other placement Exams.

Average by : Pratik Shrivastava(10 years of industry experience and awarded as best Aptitude trainer)

AVERAGES

Concept Used in Averages:

1. **Average** = $\frac{Sum}{Number}$

Average of 1,2,3,4,5

Average = $\frac{1+2+3+4+5}{5} = \frac{15}{5} = 3$

2. **Average of continuous number** = $\frac{First\ no+Last\ no}{2}$

Eg: Average of 1,2,3,4,5

Average = $\frac{1+5}{2} = \frac{6}{2} = 3$

3. **Average of a number with common difference same** = $\frac{First\ no+Last\ no}{2}$

Eg: 3,5,7,9,11

Average = $\frac{3+11}{2} = \frac{14}{2} = 7$

Note: Before calculating average arrange the number in ascending order.

AVERAGES

Concept Used in Averages:

Average will be always between Minimum and Maximum value excluding minimum and maximum value.

Eg: Find out average of 57,43,53,41,52 ?

a) 58.2 b)39.5 c)49.2 d)60

Before finding the Average arrange 57,43,53,41,52 in ascending order.

41,43,52,53,57

Now the Average will be in between minimum(41) and maximum(57) number excluding minimum and maximum value. So 49.2 is in between 41 and 57.

Minimum< AVERAGE < Maximum

Note : when all the numbers are same, Average will be same

AVERAGES

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AVERAGES

Q1. Find the average of first 60 natural number?

A) 20.5 B) 30.5 C) 22 D) 25

Solution :

Natural Numbers: A natural number is an integer greater than 0. Natural numbers begin at 1 and increment to infinity: 1, 2, 3, 4, 5, etc.

AVERAGES

Q2. Find the average of first 110 natural number?

A) 20.5 B)55.5 C) 22 D) 25

Solution :

Natural Numbers: A natural number is an integer greater than 0. Natural numbers begin at 1 and increment to infinity: 1, 2, 3, 4, 5, etc.

AVERAGES

Q3. Find the average of first 69 whole number?

A) 20.5 B) 34 C) 22 D) 25

Solution :

Whole Numbers" {**0**, 1, 2, 3, ...}

0, 1, 2, 3 .. ∞

first five whole (5)

[0, 1, 2, 3, 4]

(*) 0, 1, 2, 3 - - 69 (x)

0, 1, 2, 3 .. 68

Avg: $\frac{0+68}{2} = \frac{68}{2} = 34$

AVERAGES

Q4. The average of first five multiples of 3 is:

A) 8 B) 9 C) 10 D) 11

Solution :

concept 3

3, 6, 9, 12, 15

Avg: $\frac{3+15}{2} = \frac{18}{2} = 9$.

Avg: $\frac{3+6+9+12+15}{5}$

AVERAGES

Q5. Find the average of all prime numbers between 30 and 50.

a) 40 b) 49.8 c) 39.8 d) 50

Solution :

Prime Number : A prime number is a positive integer having exactly two factors. If p is a prime, then it's only factors are necessarily 1 and p itself.

* The first prime number is 2 and it is the only even prime no.

Prime NO → 1, itself

7 → 1, 7

2 → 1, 2

33 ✓ → 3, 33, 11

31, 37, 41, 43, 47 →

Avg: $\frac{\text{Sum}}{\text{NO}} = \frac{31+37+41+43+47}{5} = \frac{200}{5}$

31 < Avg < 47 ✓

AVERAGES

Q6. Find the average of all prime numbers between 10 and 20.

a) 10.5 b)12.5 c)18.8 d)30 (e) 15

Solution :

Prime Number : A prime number is a positive integer having exactly two factors. If p is a prime, then it's only factors are necessarily 1 and p itself.

The first prime number is 2 and it is the only even prime no.

10, 20

11, 13, 17, 19

Avg = $\frac{11+13+17+19}{4} = \frac{60}{4} = 15$

30
30

AVERAGES

Q7 find the average of the following number:

72,62,68,66,70,64

A) 72 B) 66 C) 68 D) 64 E) None of these

Solution :

(67)

62, 64, 66, 68, 70, 72

Avg = $\frac{1st\ no + Last\ no}{2}$

$= \frac{62+72}{2} = \frac{134}{2}$

$= 67$

AVERAGES

Q8. The average of the two digit numbers, which remain the same when the digits interchange their position is :

A)33 B)55 C)44 D)66

Solution:

11, 22, 33, 44, 55, 66, 77, 88, 99

12
21

Numbers of numbers is odd, then Avg = middle no

Avg = $\frac{11+99}{2} = \frac{110}{2} = 55$

1, 2, 3, 4, 5

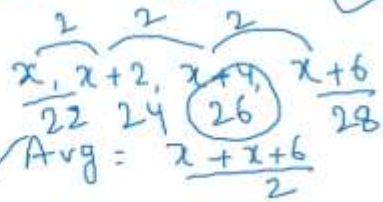
3

AVERAGES

Q9. The average of four consecutive even number is 25. The second largest number is:

A) 28 B) 30 C) 32 D) 26

Solution :



Avg = $\frac{x + x+6}{2}$

$25 = \frac{2x+6}{2} = \frac{2(x+3)}{2}$

$25 = x+3$

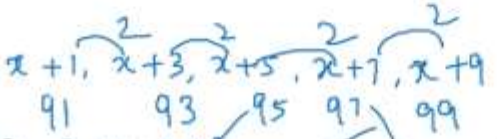
$x = 25-3 = 22$

AVERAGES

Q10. The average of five consecutive odd number is 95. The second largest number is:

A) 90 B) 93 C) 97 D) 99

Solution :



[31 33 35 37 39
x, x+2, x+4, x+6, x+8]

Avg = $\frac{x+1+x+9}{2}$

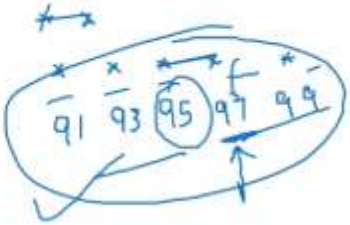
$95 = \frac{2x+10}{2} = \frac{2(x+5)}{2}$

$95 = x+5$

$x = 95-5 = 90$

drama

[short tricks]



AVERAGES

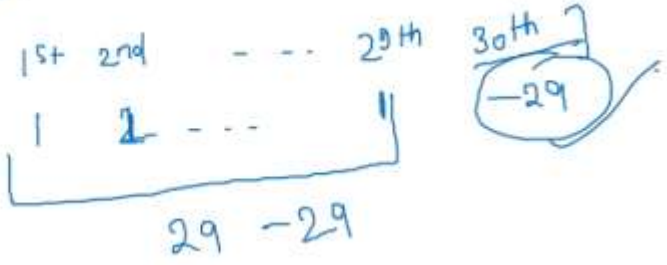
Q11. The average of 30 numbers is zero. Of them, at the most, how many may be greater than zero?

A.0 B.1 C.10 D.29

Solution:

Avg = $\frac{\text{Sum}}{\text{NO}}$ → Sum = 0

29 - 29 = 0
30

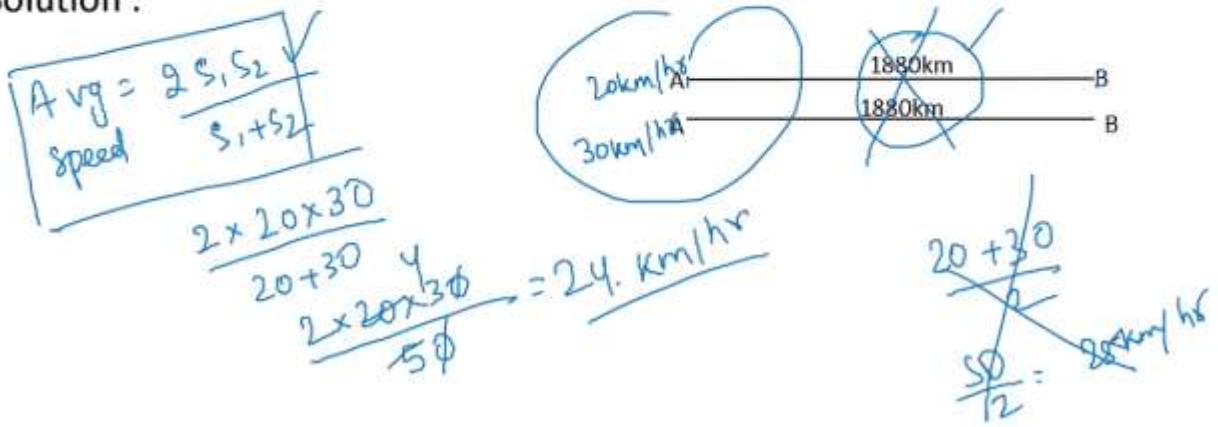


AVERAGES

Q12. Distance between two stations A & B is 1880km. A train covers the journey from A to B at 20kmph and back to A with a uniform speed of 30 kmph. Find average speed of train during the whole journey.

A. 21 kmph B. 24 kmph C. 30 kmph D.35kmph

Solution :

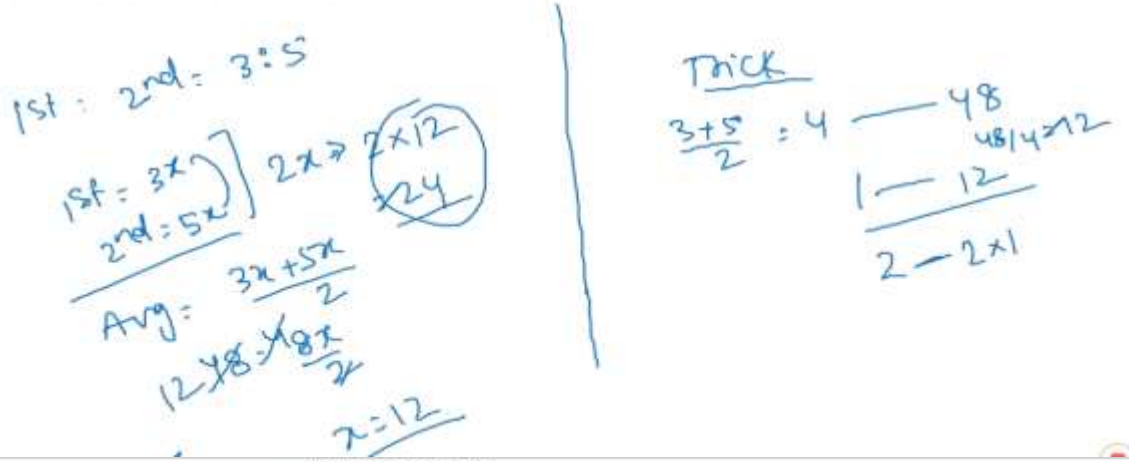


Average

Q13. The ratio of two positive numbers is 3 : 5 and the average of the number is 48. What is the difference of numbers?

(a) 28 (b) 26 (c) 24 (d) 22 (e) 32

Solution:

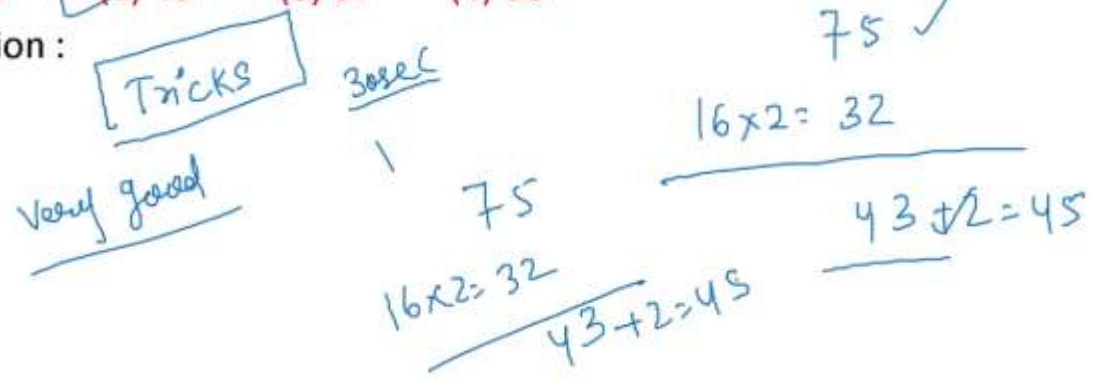


AVERAGES

Q14. A bats man in his 16th innings makes a score of 75, and thereby increases his average by 2. What is his average after 16 innings?

(1) 40 (2) 45 (3) 37 (4) 38

Solution :



AVERAGES

Q15. A Batsman makes a score of 87 runs in the 17th inning and thus increases his average by 3. Find his average after 17th inning.?

(1) 40 (2) 39 (3) 37 (4) 38

Solution :

17th = 36 (Avg)

87

17 × 3 = 51

36 + 3 = 39

AVERAGES

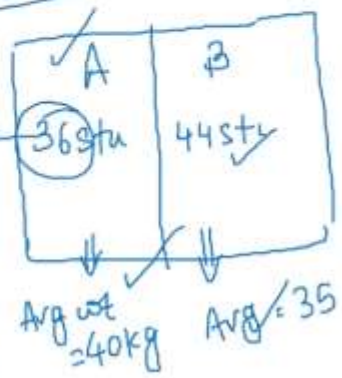
Q16. There are two sections A and B of a class, consisting of 36 and 44 students' respectively.

If the average weight of section A is 40kg and that of section B is 35kg, find the average weight of the whole class.

A) 30 B) 35 C) 37.25 D) 42.5

Solution :

data



35 × 11

Avg wt of whole class

$= \frac{Sum_A + Sum_B}{Total\ NO}$ ← 80

$= \frac{40 \times 36 + 35 \times 44}{80}$

$= \frac{[10 \times 36 + 35 \times 11]}{20}$

$= \frac{360 + 385}{20}$

$= \frac{745}{20}$

$= \frac{372.5}{10} = 37.25$

AVERAGES

Q17. The average of 50 numbers is 30. If two numbers, 35 and 40 are discarded, then the average of the remaining numbers is nearly:

A) 28.32 B) 29.68 C) 28.78 D) 29.27

Solution :

$\Rightarrow Sum_{50} = Avg \times No = 50 \times 30 = 1500$

$\Rightarrow Sum_{48} = 1500 - 35 - 40$

$= 1425$

No = 48

Avg = $\frac{1425}{48}$ = 29.68

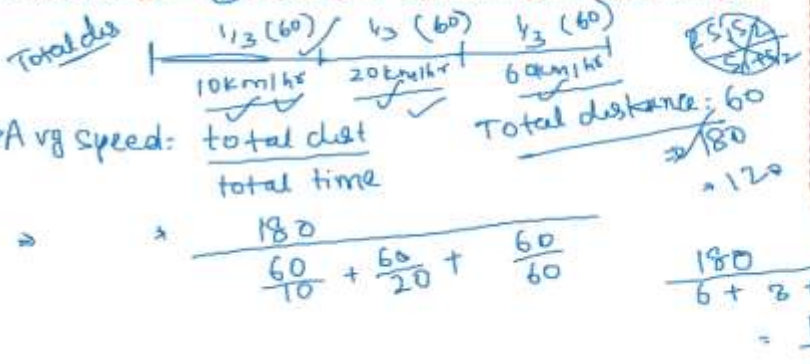
48 × 3 = 144

AVERAGES

Q18. A car travels the first one-third of a certain distance with a speed of 10 km/hr, the next one-third distance with a speed of 20 km/hr and the last one-third distance with a speed of 60 km/ hr. The average speed of the car for the whole journey is ?

A)20kmph B)18kmph C)30kmph D)25kmph

Total distance = 180KM
First one-third = 180/3=60
Next one third =60
And last one third =60
D1= 60, D2=60, D3=60
S1=10, S2=20, S3=30



Avg Speed: total dist / total time

Total distance: 60 → 180 → 120

$$\frac{180}{\frac{60}{10}+\frac{60}{20}+\frac{60}{60}}$$

$$\frac{180}{6+3+1}=\frac{180}{10}=18\ km/hr$$

$d = s \times t$, $t = d/s$

Averages:

Q19. The average temperature for Monday, Tuesday, Wednesday and Thursday was 48 degrees and for Tuesday, Wednesday, Thursday and Friday was 46 degrees. If the temperature on Monday was 42 degrees. Find the temperature on Friday ?

A) 34 B) 36 C) 38 D) 40

TCS

Solution:

Avg = Sum / No

Sum = Avg × No

Mon = 42

Mon + Tue + Wed + Thu = 48 × 4 = 192

T + W + T = 192 − 42 = 150

T + W + T + F = 46 × 4 = 184

F = 184 − 150 = 34°

Average

Q20. The average of 5 number is 281.the average of first two no. is 280 and the average of last two no is 178.5.what is third number?

a.488 b.336 c.228 d.464

Solution:

$Sum_5 = 281 \times 5 = 1405$

$S_{1,2} = 280 \times 2 = 560$

$S_{4,5} = 178.5 \times 2 = 357$

$Sum_5 - (Sum_{1,2} + Sum_{4,5}) =$

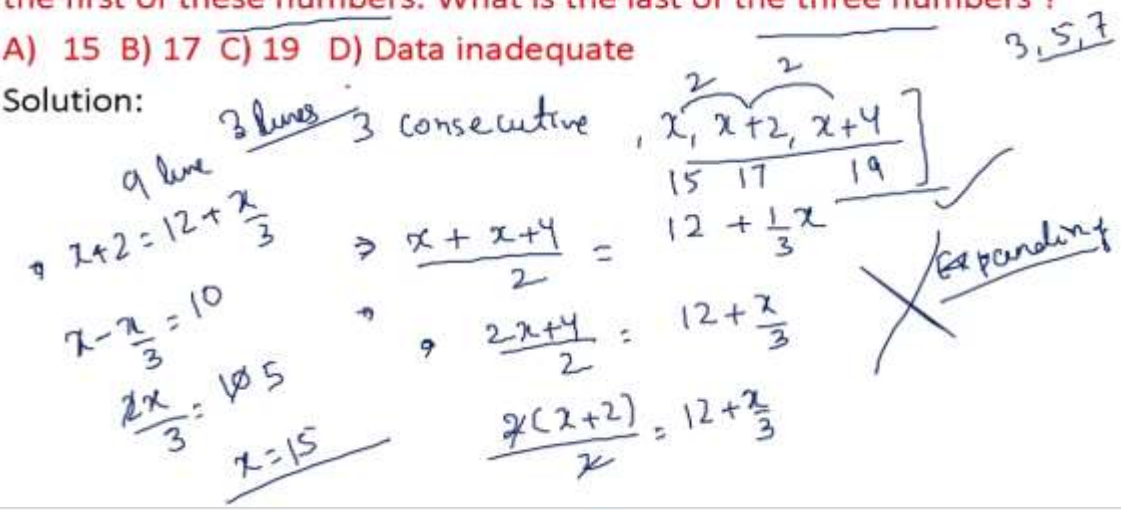
$1405 - 560 - 357 = 488$

Average

Q21. The average of three consecutive odd number is 12 more than one third of the first of these numbers. What is the last of the three numbers ?

A) 15 B) 17 C) 19 D) Data inadequate

Solution:

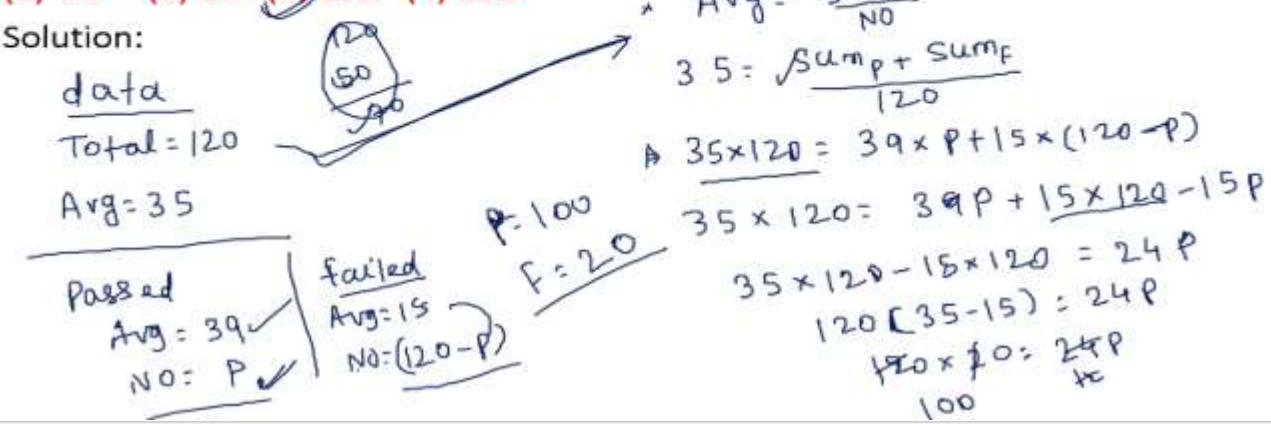


Average

Q22 The average of marks obtained by 120 candidates in a certain examination is 35. If the average marks of passed candidates is 39 and that of the failed candidates is 15, what is the number of candidates who passed the examination?

(1) 90 (2) 85 (3) 100 (4) 120

Solution:



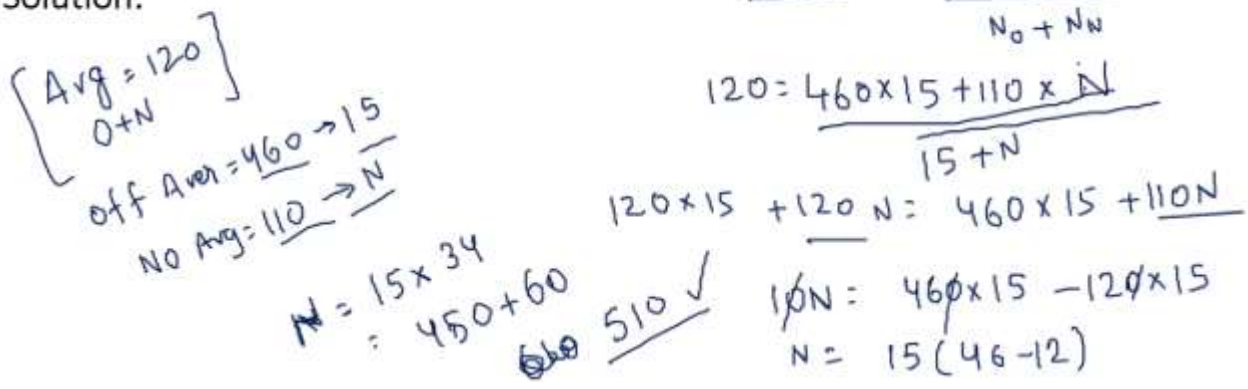
Average

Q23. The average salary of the entire staff in a office is Rs 120 per month. The average salary of officers is Rs 460 and that of non- officers is Rs 110. If the number of officers is 15, then find the number of non – officers in the office.

(1) 500 (2) 510

(3) 520 (4) 550Solution:

Solution:



Average

Q24. There were 35 students in a hostel. If the number of students increases by 7, the expenses of the mess increase by Rs. 42 per day while the average expenditure per head diminishes by Rs1. Find the original expenditure of the mess.

(1) Rs. 400 (2) Rs. 340

(3)Rs. 420 (4)Rs. 450

Solution:

Hostel
35 Student
↓+7
42

35×12
35×(10+2)
350+70
420

original
Avg = $\frac{Sum_{35}}{35}$

$x = \frac{Sum_{35}}{35} \Rightarrow Sum_{35} = 35x$

Avg = Sum / NO

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

$42x - 42 = 35x + 42$

$7x = 84 \quad x = 12$

Average

Q25. The average of marks of 14 students was found to be 71. But it was later found that the marks of one student had been wrongly entered as 42 instead of 56 and of another as 74 instead of 32. Find the correct average.

(a) 67 (b) 68 (c) 69 (d) 71 (e) 75

Solution:

$Sum_{14} = 71 \times 14 = (70+1) \times 14 = 980 + 14 = 994$

$\Rightarrow 994 - 42 - 74 + 56 + 32$

$\Rightarrow 1082 - 116 = 966$ actual Sum / correct

14×10
14×9
84
126

Correct Avg = $\frac{966}{14} = 69$

Average

V.V.I

Q26. The average age of 24 students in a class is 10. If the teacher's age is included, the average increases by one. What is the age of the teacher?

a.30 b.35 c.45 d.40

Solution:

24+1

Avg
Sum 24 = 24×10 = 240

10 Avg = $\frac{Sum}{NO}$

$11 = \frac{240 + T}{25}$

$275 - 240 = T$

$35 = T$

25×11
= 275