14. (3) Let the initial salaries of A, B and C be ₹ x, ₹ $3x$ and ₹ $4x$ respectively.
Respective ratio after corresponding increase

$$= \frac{x\times105}{100} : \frac{3x\times110}{100} : \frac{4x\times115}{100}$$

$$= 105 : 330 : 460$$

$$= 21 : 66 : 92$$

15. (2) If the salaries of A, B and C be ₹ x, ₹ y and ₹ z respectively, then

$$\frac{x\times20}{100} : \frac{y\times15}{100} : \frac{z\times25}{100}$$

$$\Rightarrow \frac{x}{5} : \frac{3y}{20} : \frac{z}{4} = 8 : 9 : 20$$

$$\Rightarrow x : y : z = 40 : 60 : 80$$

$$= 2 : 3 : 4$$

$$\therefore \text{ A's salary } = \frac{2}{9} \times 72000$$

= ₹ 16000

16. (3) Ratio of the values of one rupee, 50 paise and 25 paise coins = 8 : 4 : 3
Ratio of their number
= 8 : 4 × 2 : 3 × 4 = 2 : 2 : 3
Sum of ratios = 2 + 2 + 3 = 7
∴ Number of 50-paise coins

$$= \frac{2}{7}\times280 = 80$$

TYPE-XI

1. (4) Orginal ratio of A, B and C

$$= \frac{1}{2} : \frac{1}{3} : \frac{1}{4} = 6 : 4 : 3$$

∴ Share of A

$$= \frac{6}{13}\times117 = ₹\ 54$$

Share of B

$$= \frac{4}{13}\times117 = ₹\ 36$$

and share of C

$$= \frac{3}{13}\times117 = ₹\ 27$$

The ratio of A, B and C by mistake = 2 : 3 : 4

$$\therefore \text{ Share of A } = \frac{2}{9}\times117 = ₹\ 26$$

$$\text{Share of B } = \frac{3}{9}\times117 = ₹\ 39$$

$$\text{Share of C } = \frac{4}{9}\times117 = ₹\ 52$$

Therefore, it is clear from above calculation that C gains maximum i.e. ₹ 25.

2. (3) According to question,
A : B = 2 : 1
B : C = 4 : 1
∴ A : B : C = 8 : 4 : 1

3. (1) A : B = 5 : 2
B : C = 7 : 13
∴ A : B : C
= 5 × 7 : 2 × 7 : 2 × 13
= 35 : 14 : 26
Sum of the ratios
= 35 + 14 + 26 = 75
Total amount = ₹ 7500

$$\therefore \text{ B's share } = ₹\ \frac{14}{75}\times7500$$

= ₹ 1400

4. (2) A : B = 6 : 5, B : C = 10 : 9
A : B : C = 6 : 5
10 : 9
60 : 50 : 45
=12 : 10 : 9
According to the question
(12 + 10 + 9) units ⇒ 1240

$$9 \text{ units } = \frac{1240}{31}\times9$$

⇒ ₹ 360

5. (1)

A : B = 2 : 3
B : C = 4 : 3
C : D = 2 : 3
A : B : C : D = 2×4×2 : 3×4×2 : 3×3×2 : 3×3×3
or, A : B : C : D = 16 : 24 : 18 : 27
Sum of the ratios
= 16 + 24 + 18 + 27 = 85

$$\text{B's share } = ₹\ \frac{24}{85}\times3400$$

= ₹ 960

$$\text{D's share } = ₹\ \frac{27}{85}\times3400$$

= ₹ 1080
The required sum
= ₹ (1080 + 960) = ₹ 2040

6. (1) A : B = 5 : 2
B : C = 7 : 13
A : B : C = 5×7 : 7×2 : 2×13
= 35 : 14 : 26
Sum of the ratios
= 35 + 14 + 26 = 75

$$\text{A's share } = ₹\ \frac{35}{75}\times750$$

= ₹ 350

7. (4) Ratio = $\frac{1}{2} : \frac{1}{4} : \frac{5}{16}$
= 8 : 4 : 5
Sum of ratios = 8 + 4 + 5 = 17
∴ Required answer

$$= ₹\ \left(\frac{8-4}{17}\right)\times68000$$

$$= ₹\ \frac{4}{17}\times68000$$

= ₹ 16000

8. (4) Ratio = $\frac{3}{5} : 2 : \frac{5}{3}$
= 9 : 30 : 25
Sum of ratios = 9 + 30 + 25
= 64
∴ Share of second worker

$$= \frac{30}{64}\times6400 = ₹\ 3000$$

9. (2) $A = B\times\frac{2}{9} = \frac{2B}{9}$

$$C = \frac{3A}{4} \ ; \ A = \frac{4}{3}C$$

∴ Ratio of A : B : C = 4 : 18 : 3

$$\text{Share of A } = \frac{4}{25}\times1250 = ₹\ 200$$

$$\text{Share of B } = \frac{18}{25}\times1250 = ₹\ 900$$

$$\text{Share of C } = \frac{3}{25}\times1250 = ₹\ 150$$

10. (4) A's share $= 9000\times\frac{4}{15}$
= 600 × 4 = ₹ 2400

$$\text{C's share } = 9000\times\frac{6}{15}$$

= 600 × 6 = ₹ 3600
∴ Difference = 3600 – 2400
= ₹ 1200

11. (4) A : B = 3 : 4
B : C = 3 : 4
A : B : C = 9 : 12 : 16

$$\therefore \text{ A's share } = \frac{9}{9+12+16}\times₹\ 370$$

= ₹ 90

12. (4) Let the amount to be distributed be ₹ x.
P : Q : R = 2 : 7 : 9
Sum of the ratios = 2+7 + 9 = 18

$$\therefore \text{ P } = \frac{2}{18}\times x = \frac{x}{9}$$

$Q = \frac{7}{18}x$

$R = \frac{9x}{18} = \frac{x}{2}$

As given,

$\frac{x}{9} + \frac{7x}{18} = \frac{x}{2}$

Thus, we get no conclusion. Amount should necessarily be known.

13. (4) According to the question,
A : B = 5 : 12 = 10 : 24
B : C = 4 : 5.50 = 24 : 33
∴ A : B : C = 10 : 24 : 33
Sum of the ratios
= 10 + 24 + 33 = 67
Difference between the shares of C and B

$= ₹ \left(\frac{33-24}{67} \times 2010\right)$

$= ₹ \left(\frac{9}{67} \times 2010\right) = ₹ 270$

14. (3) $\frac{2}{5}A + 40 = \frac{2}{7}B + 20$

$= \frac{9}{17}C + 10 = x$

$\therefore A = \frac{5}{2}(x-40), B = \frac{7}{2}(x-20)$

and, $C = \frac{17}{9}(x-10)$

$\therefore \frac{5}{2}(x-40) + \frac{7}{2}(x-20) + \frac{17}{9}(x-10)$
= 600
$\Rightarrow x = 100$

∴ A's share = $₹ \frac{5}{2}(100 - 40)$
= ₹ 150

15. (2) When A gets 100 paise, B gets 90 Paise
When B gets 100 paise, C gets 110 paise
∴ When B gets 90 paise, C gets

$\frac{110}{100} \times 90$ = 99 paise

∴ A : B : C = 100 : 90 : 99
Sum of the ratios
= 100 + 90 + 99 = 289

$\therefore$ B' share = $\left(\frac{90}{289} \times 86700\right)$

= ₹ 27000

16. (1) A : B = 2 : 3
B : C = 4 : 5
∴ A : B : C = 8 : 12 : 15

∴ B's share = $\frac{12}{35} \times 7000$

= ₹ 2400

17. (3) Suppose amount received by men = 5x.
and amount received by women = 4x
According to question
5x + 4x = 180
$\Rightarrow$ 9x = 180 $\Rightarrow$ x = 20
∴ Amount received by men
= ₹ 100
Amount received by women= ₹ 80
Suppose the number of men be y and that of women be (66 – y).
According to question

$\frac{\frac{100}{y}}{\frac{80}{66-y}} = \frac{3}{2}$

$\Rightarrow \frac{100}{y} \times \frac{66-y}{80} = \frac{3}{2}$

$\Rightarrow \frac{5(66-y)}{4y} = \frac{3}{2}$

$\Rightarrow$ 660 – 10y = 12y
$\Rightarrow$ 22y = 660 $\Rightarrow$ y = 30

18. (2) B's share

$= \frac{3}{(2+3+4)} \times 738$

$= \frac{3}{9} \times 738 = ₹ 246$

19. (4) A × 0.5 = B × 0.6 = C × 0.75

$\Rightarrow \frac{A \times 5}{10} = \frac{B \times 6}{10} = C \times \frac{75}{100}$

$\Rightarrow \frac{A}{2} = \frac{B}{\frac{5}{3}} = \frac{C}{\frac{4}{3}}$

$\therefore$ A : B : C = $2 : \frac{5}{3} : \frac{4}{3}$
= 6 : 5 : 4
∴ C's share

$= \frac{4}{15} \times 1740 = ₹ 464$

20. (2) Amount received by y
= ₹ 100.
Amount received by x = ₹ 125.
Amount received by z

$= \frac{100 \times 100}{75} = ₹ \frac{400}{3}$

∴ Required ratio

$= 125 : 100 : \frac{400}{3}$

$= 5 : 4 : \frac{16}{3} = 15 : 12 : 16$

21. (2) B = C + 8
A = C + 8 + 7 = C + 15
∴ C + 15 + C + 8 + C = 53
$\Rightarrow$ 3C + 23 = 53
$\Rightarrow$ 3C = 53 – 23 = 30
$\Rightarrow$ C = ₹ 10
∴ B = C + 8 = 10 + 8 = ₹ 18
A = C + 15 = 10 + 15
= ₹ 25
∴ A : B : C = 25 : 18 : 10

22. (2) A : B = 2 : 3 = 8 : 12
B : C = 4 : 5 = 12 : 15
∴ A : B : C = 8 : 12 : 15
Sum of ratios = 35

∴ A's share = $\frac{8}{35} \times 700$

= ₹ 160

B's share = $\frac{12}{35} \times 700$

= ₹ 240

C's share = $\frac{15}{35} \times 700$

= ₹ 300

23. (2) A : B : C = $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$

$= \frac{1}{2} \times 12 : \frac{1}{3} \times 12 : \frac{1}{4} \times 12$

[LCM of 2, 3 and 4 = 12]
= 6 : 4 : 3

A's share = $\frac{6}{13} \times 2600$

= ₹ 1200

B's share = $\frac{4}{13} \times 2600$

= ₹ 800

C's share = $\frac{3}{13} \times 2600$ = ₹ 600

24. (2) According to question,
P + Q + R = ₹ 300
Now, Q = P + 30
R = Q + 60
= P + 30 + 60 = P + 90
Hence, P + Q + R = ₹ 300
$\Rightarrow$ P + P + 30 + P + 90 = 300
$\Rightarrow$ 3P + 120 = 300

$\Rightarrow P = \frac{180}{3} = 60$

∴ Share of P = ₹ 60, Q = ₹ 90
R = ₹ 150
$\Rightarrow$ P : Q : R = 60 : 90 : 150
= 6 : 9 : 15
= 2 : 3 : 5 :

25. (3) $A \times \frac{1}{2} = B \times \frac{1}{3} = C \times \frac{1}{4}$

$\Rightarrow \frac{A}{2} = \frac{B}{3} = \frac{C}{4}$

$\therefore$ A : B : C = 2 : 3 : 4

$\therefore$ A $\Rightarrow \frac{2}{9} \times 900$ = ₹ 200

B $\Rightarrow \frac{3}{9} \times 900$ = ₹ 300

C $\Rightarrow \frac{4}{9} \times 900$ = ₹ 400

26. (3) A : B : C = 2 : 5 : 4

Sum of ratios = 2 + 5 + 4 = 11

Difference

$= \left(\frac{5}{11} - \frac{2}{11}\right) \times 126.50$

$= \frac{3}{11} \times 126.50$ = ₹ 34.50

27. (2) B's share = Rs. b

A's share = Rs. $(b + 7)$

C's Share = Rs.$(b - 6)$

$\therefore b + b + 7 + b - 6 = 76$

$\Rightarrow 3b = 76 - 1 = 75$

$\Rightarrow b$ = Rs. 25

$\therefore$ A's share = 25 + 7 = Rs. 32

C's share = 25 – 6 = Rs. 19

$\therefore$ Required ratio = 32 : 25 : 19

28. (4) $A = \frac{1}{3}$ (B + C)

$\Rightarrow 3A = B + C$ ...(i)

$B = \frac{2}{3}$ (A + C)

$\Rightarrow 3B = 2A + 2C$ ...(ii)

From equation (i),

$3A = B + C$

$\Rightarrow 9A = 3B + 3C$

$\Rightarrow 9A = 2A + 2C + 3C$

$\Rightarrow 7A = 5C$ ...(iii)

From equation (ii),

$3B = 2\left(\frac{5C}{7}\right) + 2C$

$\Rightarrow 21B = 10C + 14C$

$\Rightarrow 21B = 24C$

$\Rightarrow 7B = 8C$ ...(iv)

From equations (iii) and (iv),

$C = \frac{7A}{5} = \frac{7B}{8}$

$\therefore \frac{A}{5} = \frac{B}{8} = \frac{C}{7}$

C's share = $\frac{7}{(5+8+7)} \times 3000$

= ₹ $\left(\frac{7}{20} \times 3000\right)$ = ₹ 1050

29. (1) **Case I**

A : B : C = $\frac{1}{4} : \frac{1}{5} : \frac{1}{6}$

$= \frac{1}{4} \times 60 : \frac{1}{5} \times 60 : \frac{1}{6} \times 60$

[LCM of 4, 5 and 6 = 60]

= 15 : 12 : 10

Sum of ratios = 15 + 12 + 10 = 37

$\therefore$ C's share = $\frac{10}{37} \times 555$

= ₹ 150

Case II

A : B : C = 4 : 5 : 6

Sum of ratios = 4 + 5 + 6 = 15

$\therefore$ C's share = $\frac{6}{15} \times 555$

= ₹ 222

$\therefore$ Required answer

= ₹ (222 – 150) = ₹ 72

30. (1) Son : wife = 3 : 1 = 9 : 3

Wife : daughter = 3 : 1

$\therefore$ Son : wife : daughter

= 9 : 3 : 1

Sum of ratios = 9 + 3 + 1 = 13

If total wealth be ₹ x, then

Son's share – daughter's share

= ₹ 10,000

$\Rightarrow \frac{9x}{13} - \frac{x}{13} = 10{,}000$

$\Rightarrow \frac{9x - x}{13} = 10{,}000$

$\Rightarrow 8x = 13{,}00{,}00$

$\Rightarrow x = \frac{13{,}00{,}00}{8}$ = ₹ 16250

31. (2) A : B = 3 : 4

B : C = 3.5 : 3 = 7 : 6

$\therefore$ A : B : C = (3 × 7) : (4 × 7) : (4 × 6)

= 21 : 28 : 24

Sum of ratios = 21+28 + 24 = 73

$\therefore$ Difference between the shares of B and C

$= \left(\frac{28 - 24}{73}\right) \times 730$

= 4 × 10 = Rs. 40

32. (3) A : B : C : D = 7 : 6 : 3 : 5

Sum of ratios = 7+ 6 + 3 + 5 = 21

$\therefore$ Difference of shares of B and C = Rs. 270

If the total amount be Rs. x, then

$\left(\frac{6-3}{21}\right)x$ = 270

$\Rightarrow 3x = 21 \times 270$

$\Rightarrow x = \frac{21 \times 270}{3}$ = Rs. 1890

$\therefore$ D's share = $\frac{5}{21} \times 1890$

= Rs. 450

33. (4) B's capital = Rs. x

$\therefore$ A's capital = Rs. $2x$.

Ratio of equivalent capitals of A and B for 1 month

$= \left(2x \times 10 + \frac{3x}{2} \times 2\right) : \left(x \times 8 + \frac{x}{2} \times 4\right)$

$= (20x + 3x) : (8x + 2x)$

$= 23x : 10x = 23 : 10$

34. (1) A's investment = Rs. $3x$

B's investment = Rs. $5x$

C's investment = Rs. $5x$

Ratio of the equivalent capitals of A, B and C for 1 month

$= (3x \times 12) : (5x \times 12) : (5x \times 6)$

$= 36x : 60x : 30x$

= 6 : 10 : 5

35. (3) Ratio of equivalent capitals of A, B and C for 1 month

$= (16000 \times 3 + 11000 \times 9) : (12000 \times 3 + 17000 \times 9) : (21000 \times 6)$

= (48000 + 99000) : (36000 + 153000) : 126000

= 147000 : 189000 : 126000

= 49 : 63 : 42

= 7 : 9 : 6

Sum of ratios = 7 + 9 + 6 = 22

$\therefore$ Required difference

= Rs. $\left(\frac{9-6}{22} \times 26400\right)$

= Rs. $\frac{3 \times 26400}{22}$ = Rs. 3600

36. (4) A : C = 2 : 1 = 6 : 3

A : B = 3 : 2 = 6 : 4

$\therefore$ A : B : C = 6 : 4 : 3

$\therefore$ Sum of the terms of ratio

= 6 + 4 + 3 = 13

$\therefore$ B's share

= Rs. $\left(\frac{4}{13} \times 157300\right)$

= Rs. 48400

37. (1) Ratio = 8 : 4 : 7

Sum of the terms of ratio

= 8 + 4 + 7 = 19

$\therefore$ Share of 4 women

= Rs. $\left(\frac{7}{19}\times 380\right)$

= Rs.140

1 women's share = $\frac{140}{4}$

= Rs. 35

38. (2) Let the total amount be Rs. x.
It is given that,
A : B : C = 5 : 6 : 9
Sum of the terms of ratio
= 5 + 6 + 9 = 20

$\therefore$ A's share = Rs. $\frac{5x}{20}$

= Rs. $\frac{x}{4}$

$\therefore \frac{x}{4}$ = Rs. 450

$\Rightarrow x$ = Rs. (4 × 450)
= Rs. 1800

39. (1) According to the question,

$A = \frac{B}{2} = 3C \Rightarrow \frac{A}{1} = \frac{B}{2} = \frac{C}{\frac{1}{3}}$

$\therefore$ A : B : C = 1 : 2 : $\frac{1}{3}$

= 3 : 6 : 1
Sum of the terms of ratio
= 3 + 6 + 1 = 10

$\therefore$ C's share = Rs. $\left(\frac{1}{10}\times 490\right)$

= Rs. 49

40. (4) A : B = $\frac{1}{3} : \frac{1}{5}$ = 5 : 3

Sum of the terms of ratio
= 5 + 3 = 8
Total profit = Rs. 960
$\therefore$ Difference between their shares

= $\left(\frac{5}{8}-\frac{3}{8}\right)$ of 960

= $960\times\frac{1}{4}$ = Rs. 240

41. (2) Let the shares of three brothers be Rs. a, Rs. b and Rs. c respectively.
According to the question,

$b = \frac{-5}{13}(a + c)$

$\Rightarrow \frac{13b}{5} = a + c$ ..... (i)

$\therefore$ $a + b + c$ = 1620

$\Rightarrow \frac{13b}{5} + b$ = 1620

$\Rightarrow \frac{13b+5b}{5}$ = 1620

$\Rightarrow 18b = 1620 \times 5$

$\Rightarrow b = \frac{1620\times 5}{18}$ = Rs. 450

42. (3) Let total amount be Rs. x.
According to the question,

$\frac{x}{2} + \frac{x}{3} + 1200 = x$

$\Rightarrow x - \frac{x}{2} - \frac{x}{3} = 1200$

$\Rightarrow \frac{6x-3x-2x}{6} = 1200$

$\Rightarrow \frac{x}{6} = 1200 \Rightarrow x = 1200 \times 6$

= Rs. 7200

$\therefore$ A's share = Rs. $\left(\frac{7200}{2}\right)$

= Rs. 3600

43. (4) According to the question,
3A = 4B

$\Rightarrow \frac{A}{4} = \frac{B}{3} \Rightarrow$ A : B = 4 : 3
B's capital is twice C's capital.

$\therefore \frac{B}{C} = \frac{2}{1}$

B : C = 2 : 1

$\therefore$ A : B : C = 4 × 2 : 3 × 2 : 3 × 1
= 8 : 6 : 3

44. (1) A's share = $\frac{2}{9}$ of (B + C)'s share

$\therefore$ (B + C)'s share = $\frac{9}{2}$ A's share

According to the question,

$A + \frac{9A}{2}$ = 770

$\Rightarrow \frac{2A+9A}{2}$ = 770

$\Rightarrow \frac{11A}{2}$ = 770

$\Rightarrow A = \frac{770\times 2}{11}$ = Rs. 140

45. (2) According to the question,
A : B = 3 : 4
B : C = 3.5 : 3
= 7 : 6
$\therefore$ A : B : C
= 3 × 7 : 4 × 7 : 4 × 6
= 21 : 28 : 24
Sum of the terms of ratio
= 21 + 28 + 24 = 73
$\therefore$ Difference between the shares of B and C

= Rs. $\left(\frac{28-24}{73}\right)\times 730$

= Rs. 40

46. (3) Ratio of the equivalent capitals of A and B for 1 month
= (4000 × 8 + 6000 × 4) : (5000 × 9 + 3000 × 3)
= (32000 + 24000) : (45000 + 9000)
= 56000 : 54000 = 28 : 27
Sum of the terms of ratio
= 28 + 27 = 55
A is an active partner.
Allowance got by A in 1 year
= Rs. 1200
Remaining profit
= Rs. (6700 – 1200) = Rs. 5500

$\therefore$ B's share = Rs. $\left(\frac{27}{55}\times 5500\right)$

= Rs. 2700

47. (3) According to the question,
Amount to be distributed in the ratio 7 : 10 : 13
= Rs. (15525 – 22 – 35 – 45)
= Rs. 15420
Sum of the terms of ratio
= 7 + 10 + 13 = 30

Sunil's share= Rs. $\left(\frac{7}{30}\times 15420\right)$

= Rs. 3598
Anil's share

= Rs. $\left(\frac{10}{30}\times 15420\right)$

= Rs. 5140
Jamil's share

= Rs. $\left(\frac{13}{30}\times 15420\right)$

= Rs. 6682
Ratio after respective increase in each share
= (3598 + 22 + 16) : (5140 + 35 + 77) : (6682 + 48 + 37)
= 3636 : 5252 : 6767
= 36 : 52 : 67

48. (1) According to the question,

$\frac{A}{2} = \frac{B}{3} = \frac{C}{6}$

$\therefore$ A : B : C = 2 : 3 : 6
Sum of the terms of ratio
= 2 + 3 + 6 = 11
Total amount = Rs. 1980

$\therefore$ B's share = Rs. $\left(\frac{3}{11}\times 1980\right)$

= Rs. 450

49. (1) Ratio of the equivalent capitals of A, B and C for 1 month
= 13000 × 12 : 17000 × 12 : 5000 × 12
= 13 : 17 : 5
Sum of the terms of ratio
= 13 + 17 + 5 = 35
Total profit = Rs. 1400

$\therefore$ B's share = Rs. $\left(\frac{17}{35}\times 1400\right)$

= Rs. 680

50. (1) According to the question,
A + B + C = 600 .... (i)
and

$$\frac{2A}{5}+40=\frac{2B}{7}+20$$

$$=\frac{9C}{17}+10$$

$$\therefore \frac{2A}{5}+40=\frac{2B}{7}+20$$

$$=\frac{2A}{5}+20=\frac{2}{7}B$$

$$\therefore B=\frac{7}{2}\left(\frac{2A}{5}+20\right)=\frac{7A}{5}+70$$

Again, $\frac{2A}{5}+40=\frac{9C}{17}+10$

$$\Rightarrow \frac{9C}{17}=\frac{2A}{5}+30$$

$$\Rightarrow C=\frac{17}{9}\left(\frac{2A}{5}+30\right)$$

$$=\frac{34A}{45}+\frac{170}{3}$$

$$\therefore A+\frac{7A}{5}+70+\frac{34A}{45}+\frac{170}{3}=600$$

$$\Rightarrow A+\frac{7A}{5}+\frac{34A}{45}=600-70-\frac{170}{3}$$

$$\Rightarrow \frac{45A+63A+34A}{45}$$

$$=530-\frac{170}{3}$$

$$\Rightarrow \frac{142A}{45}=\frac{1590-170}{3}=\frac{1420}{3}$$

$$\Rightarrow A=\frac{1420}{3}\times\frac{45}{142}=\text{Rs. } 150$$

TYPE-XII

1. (3) Let interior angle = I and exterior angle = E
According to questions,

$$\frac{I}{E}=\frac{2}{1}\Rightarrow 2E=I.1 \text{ or, } E=\frac{I}{2}$$

But I + E = 180°

$$I+\frac{I}{2}=180$$

$$\frac{3}{2}I=180$$

$$I=\frac{2}{3}\times 180$$

I = 120°
We know that each interior angle of a regular polygon of n sides is given by

$$I=\frac{n-2}{n}\times 180°$$

$$120°=\frac{n-2}{n}\times 180°$$

$$\Rightarrow \frac{n-2}{n}=\frac{120°}{180°}=\frac{2}{3}$$

$\Rightarrow 3n - 6 = 2n \Rightarrow n = 6$

2. (3) Required answer

$$\frac{6-x}{7-x}<\frac{16}{21}$$

Check through options

$$=\frac{6-3}{7-3}=\frac{3}{4}<\frac{16}{21}$$

3.(3) Let the numbers be 17x and 45x respectively.
According to the question,

$$\frac{1}{5}\text{ of }45x-\frac{1}{3}\text{ of }17x=15$$

$$\Rightarrow 9x-\frac{17x}{3}=15$$

$$\Rightarrow \frac{27x-17x}{3}=15$$

$$\Rightarrow 10x=15\times 3$$

$$\Rightarrow x=\frac{15\times 3}{10}=\frac{9}{2}$$

$\therefore$ The required number

$$=17x=\frac{17\times 9}{2}=\frac{153}{2}=76\frac{1}{2}$$

4. (1) Price of the third variety
= x per kg.
$\therefore$ 126 + 135 + 2x = 4 × 153
$\Rightarrow$ 261 + 2x = 612
$\Rightarrow$ 2x = 612 – 261 = 351

$$\Rightarrow x=\frac{351}{2}=₹\ 175.5$$

5. (4) Given ratio is total members :
absentees = 5 : 3 i.e. $\frac{3}{5}$
Hence, Number of persons absent

$$=\frac{3}{5}\times 15=9$$

6. (3) **Case I,**

$$P:Q:R=\frac{1}{2}:\frac{1}{3}:\frac{1}{4}$$

= 6 : 4 : 3
Case II,
P : Q : R = 2 : 3 : 4
Clearly, R will gain.

7. (1) Ratio of first and second class fares = 3 : 1
Ratio of number of passengers
= 1 : 50
$\therefore$ Ratio of total amount
= 3 × 1 : 1 × 50 = 3 : 50
$\therefore$ Amount collected from second class passengers

$$=₹\left(\frac{50}{53}\times 1325\right)=₹\ 1250$$

8. (1) A : B = 3 : 2 = 9 : 6
B : C = 3 : 2 = 6 : 4
$\therefore$ A : B :C = 9 : 6 : 4
Total runs = 361
$\therefore$ Number of runs scored by A

$$=\frac{9}{(9+6+4)}\times 361$$

$$=\frac{9}{19}\times 361=171$$

9. (1)Let the number of failures = 4x and that of passers = 25 x
$\therefore$ Total number of students = 4x + 25x = 29 x
In case II
Number of students = 29x + 5
Number of failures = 4 x – 2
$\therefore$ Number of passers
= 29x + 5 – 4x + 2 = 25x +7
$\therefore$ According to the question,

$$\frac{25x+7}{4x-2}=\frac{22}{3}$$

$\Rightarrow 88x - 44 = 75x + 21$
$\Rightarrow 88x - 75x = 44 + 21$
$\Rightarrow 13x = 65$

$$\Rightarrow x=\frac{65}{13}=5$$

$\therefore$ Total number of students
= 29x = 29 × 5 = 145