Quantitative Ability MCQ Pdf for AFCAT 1 2023

Q1. The square root of which of the following is a rational number?
(a) 1250.49
(b) 6250.49
(c) 1354.24
(d) 5768.28

Q2. What is the sum of digits of the least number, which when divided by 15, 18 and 24 leaves the remainder 8 in each case and is also divisible by 13?
(a) 17
(b) 16
(c) 15
(d) 18

Q3. If the six digit number 4x4y96 is divisible by 88, then what will be the value of (x + 2y)
(a) 13
(b) 10
(c) 12
(d) 11

Q4. The square root of which of the following is a rational number?
(a) 5823.82
(b) 22504.9
(c) 2460.14
(d) 1489.96

Q5. What is the sum of the digits of the least number, which when divided by 12, 16 and 54, leaves the same remainder 7 in each case, and is also completely divisible by 13?
(a) 36
(b) 16
(c) 9
(d) 27

Q6. If the seven digit number 74x29y6 is divisible by 72, then what will be the value of (2x + 3y)?
(a) 20
(b) 21
(c) 19
(d) 16

Q7. If the seven digit number 56x34y4 is divisible by 72, then what is the least value of (x + y)?
(a) 8
(b) 12
(c) 5
(d) 14

Q8. The Square root of which of the following is a rational number?
(a) 2361.96
(b) 2758.28
(c) 72568.4
(d) 62504.9

Q9. What is the sum of the digits of the least number, which when divided by 15, 15 and 27 leaves the same remainder 9 in each case and is also completely divisible by 11?
(a) 20
(b) 17
(c) 18
(d) 19

Q10. If the seven digit number 3x6349y is divisible by 88, then what will be the value of (2x + 3y) ?
(a) 32
(b) 30
(c) 28
(d) 35

Q11. The price of sugar has decreased by 15%. By what percentage can a person increase the consumption so that there is no change in the expenditure?
(a) $\frac{300}{23}\%$
(b) $\frac{300}{17}\%$
(c) $\frac{50}{3}\%$
(d) $\frac{20}{3}\%$

Q12. From the monthly income, A spends 24% on household expenses, 16% on entertainment, 12% on education and saves the rest. If savings are Rs. 3,288 the monthly income of A is:
(a) Rs. 6,323
(b) Rs. 6,480
(c) Rs. 6,850
(d) Rs. 6,654

Q13. In the expression xy^2 the values of both variables x and y are decreased by 20%. By this, the value of expression is decreased by
(a) 40%
(b) 80%
(c) 48.8%
(d) 51.2%

Q14. If the radius of a right circular cylinder is increased by 30% and height is decreased by 27%. Find the percentage increase/decrease in volume?
(a) Increase 23.37%
(b) Decrease 37.5%
(c) Decrease 14.77%
(d) Increase 12.5%

Q15. Ram started working on a project. If his work-time per day is increased by 8% and salary per hour increased by 50%, then by how much percent his daily income would be increased?
(a) 58%
(b) 62%
(c) 63%
(d) 53%

Q16. A person spends 12½% of his income on the items of daily use and 30% of the rest on house rent. Thus, he has Rs. 2940 left with him. What is his salary (in Rupees)?
(a) 4800
(b) 5200
(c) 4500
(d) 4000

Q17. A candidate, who gets 30% marks fails by 5 marks while an another candidate who gets 40% marks and thus gets 10 marks more than the pass marks. Minimum marks required to pass the examination is
(a) 50
(b) 70
(c) 100
(d) 150

Q18. The entry fee in an exhibition was Rs 20. Later this was reduced by 15%, which increased the sale of tickets by 25%. Find the percentage increase in the number of visitors.
(a) 47%
(b) 53%
(c) 42%
(d) 49%

Q19. Price of apple is reduced from Rs. 5 Rs./kg. to 4 Rs./kg then expenditure increases by 33⅓%.find the percentage change in consumption.
(a) 50% decrease
(b) 80% increase
(c) $66\frac{2}{3}\%$ increase
(d) $16\frac{2}{3}\%$ decrease

Q20. If the price of potatoes is reduced by 25%, one can buy 6.25kg more for Rs.100. The reduced price of potatoes is
(a) Rs. 3 per kg
(b) Rs. 3.50 per kg
(c) Rs. 4 per kg
(d) Rs. 4.50 per kg

Q21. A machine depreciates in value each year at the rate of 10% of its previous value. However, every second year there is some maintenance work so that in that particular year, depreciation is only 5% of its previous value. If at the end of the fourth year, the value of the machine stands at Rs. 1, 46, 205, then find the value of machine at the start of the first year.
(a) Rs. 1, 90, 000
(b) Rs. 2, 00, 000
(c) Rs. 1, 95, 000
(d) Rs. 2, 10, 000

Q22. In a test consisting of 80 questions carrying one mark each, Arpita answers 65% of the first 40 questions correctly. What percent of the other 40 questions does she need to answer correctly to score 75% on the entire test?
(a) 60%
(b) 80%
(c) 75%
(d) 85%

Q23. Atul scored 30% marks in an examination and failed by 40 marks where as his friend Sunil gets 42% marks which is 32 marks more than the minimum required marks for the examination. The maximum marks for the examination.
(a) 600
(b) 700
(c) 800
(d) 900

Q24. Chunilal invests 65% in machinery, 20% in raw material and still has Rs. 1,305 cash with him. Find his total investment.
(a) Rs. 6,500
(b) Rs. 7, 225
(c) Rs. 8,500
(d) None of these

Q25. 5% of income of A is equal to 15% of income of B and 10% of income of B is equal to 20% of income of C. If C's income is Rs. 2000, then the total income of A, B and C is :
(a) Rs. 6000
(b) Rs. 14,000
(c) Rs. 18,000
(d) Rs. 20,000

Q26. King Dashratha, at his eleventh hour, called his three queens and distributed his gold in the following way: He gave 50% of his wealth to his first wife, 50% of the rest to his second wife and again 50% of the rest to his third wife. If their combined share is worth 1,30,900 kilograms of gold, find the quantity of gold King Dashratha was having initially?
(a) 1,50,000 kg
(b) 1,49,600 kg
(c) 1,51,600 kg
(d) 1,52,600 kg

Q27. In a market survey, 20% opted for product A whereas 60% opted for product B. The remaining individuals were not certain. If the difference between those who opted for product B and those who were uncertain was 720, how many individuals were covered in the survey ?
(a) 1440
(b) 1800
(c) 3600
(d) Data inadequate

Q28. In an assembly election at Surat, the total turnout was 80% out of which 16% of the total turnout were declared invalid. Find which of the following can be the percentage votes got by the winner of the election if the candidate who came second got 20% of the total voters on the voting list. (There were only two contestants, only one winner and the total number of voters on the voters' list was 20000.)
(a) 44.8%
(b) 47.2%
(c) 48%
(d) None of these

Q29. In the university examination last year, Rajesh scored 65% in English and 82% in History. What is the minimum percent he should score in Sociology, which is out of 50 marks (if English and History were for 100 marks each), if he aims at getting 78% overall?
(a) 94%
(b) 92%
(c) 98%
(d) 96%

Q30. In my office there are 30% female employees and 30% of these earn greater than Rs. 8,000 per months and 80% of male employees earn less than Rs. 8,000 per month. What is the percentage of employees who earn more than Rs. 8,000 per month?
(a) 30%
(b) 23%
(c) 60%
(d) Can't be determined

Q31. Rs. 7,80,516 is divided among A, B, C and D in the proportion of 2 : 3 : 4 : 3. The share of C is:
(a) Rs. 2,60,172
(b) Rs. 1,95,129
(c) Rs. 1,30,086
(d) Rs. 2,24,562

Q32. There are 50 paisa, 25 paisa and Rs. 1 coins in a bag in the ratio 5 : 8 : 1. If the total value of all the coins is Rs. 55, how many 25 paisa coins are there in the bag?
(a) 10
(b) 80
(c) 50
(d) 25

Q33. In an office of 1200 employees, the ratio of urban to rural members of staff is 8 : 7. After joining of some new employees, out of which 20 are rural, the ratio becomes 5 : 4. The number of new urban employees is:
(a) 100
(b) 85
(c) 76
(d) 108

Q34. Rs 4,06,736 is divided among A, B and C such that the ratio between A and B is 2 : 3 and B and C is 1 : 2. The share of C is:
(a) Rs 73,952
(b) Rs 1,10,928
(c) Rs 2,64,796
(d) Rs 2,21,856

Q35. The sum of three numbers is 777. The ratio between the first two numbers is 7 : 9 and the ratio between the second and third number is 3 : 7. The second number is:
(a) 252
(b) 62
(c) 189
(d) 147

Q36. Two numbers are in the ratio 4 : 9. If both the numbers are increased by 12, the ratio becomes 11 : 21. The sum of the original numbers is:
(a) 128
(b) 64
(c) 52
(d) 104

Q37. Divide Rs 8, 288 between A, B and C such that the proportion of their shares is 5 : 7 : 9. The share of C is:
(a) Rs 2,032
(b) Rs 3, 552
(c) Rs 3,872
(d) Rs 2,612

Q38. What is the mean proportional of 135 and 540?
(a) 360
(b) 180
(c) 270
(d) 145

Q39. What is the ratio of mean proportion between 4.9 and 16.9 and third proportion between 3 and 7?
(a) 61 : 59
(b) 11 : 13
(c) 43 : 57
(d) 39 ; 70

Q40. A man ordered 4 pairs of black socks and some pairs of brown socks. The price of a black socks is double that of a brown pair. While preparing the bill the clerk interchanged the number of black and brown pairs by mistake which increased the bill by 50%. The ratio of the number of black and brown pairs of socks in the original order was
(a) 2 : 1
(b) 1 : 4
(c) 1 : 2
(d) 4 : 1

Q41. If Rs. 872 is divided into three parts, proportional to $\frac{1}{2} : \frac{2}{3} : \frac{3}{4}$, then the first part is:
(a) Rs. 182
(b) Rs. 190
(c) Rs. 227.46
(d) Rs. 204

Q42. The fourth proportional to 5, 8, 15 is:
(a) 18
(b) 24
(c) 19
(d) 20

Q43. Two numbers are in the ratio 3 : 5. If 9 is subtracted from each, then new numbers are in the ratio 12 : 23. The smaller number is :
(a) 27
(b) 33
(c) 49
(d) 55

Q44. If a number is reduced by 40% it become two third of another number. What is ratio of the second number to first number?
(a) 6 : 10
(b) 9 : 8
(c) 8 : 9
(d) 9 : 10

Q45. $\frac{5a+3b}{2a-3b} = \frac{23}{5}$ then the value of a : b is:
(a) 1 : 2
(b) 1 : 3
(c) 4 : 1
(d) 2 : 3

Q46. If P : Q = 8 : 15 and Q : R = 3 : 2, then find P : Q : R?
(a) 8 : 15 : 7
(b) 7 : 15 : 8
(c) 8 : 15 : 10
(d) 10 : 15 : 8

Q47. If P : Q = 8 : 15, Q : R = 5 : 8 and R : S = 4 : 5, then P : S is equal to:
(a) 4 : 15
(b) 2 : 15
(c) 3 : 19
(d) 7 : 15

Q48. Find the 4th proportional to 4, 16 and 7?
(a) 28
(b) 29
(c) 22
(d) 25

Q49. Find the mean proportional between 9 and 64?
(a) 25
(b) 24
(c) 27
(d) 35

Q50. What will be the duplicate ratio of 2 : 7 ?
(a) 4 : 49
(b) 49 : 4
(c) 4 : 14
(d) 8 : 343

Solutions

S1. Ans.(c)
Sol.

$\sqrt{1354.24}$
= 36.8

S2. Ans.(a)
Sol.

LCM of (15, 18, 24) = 360
ATQ
$\frac{360k+8}{13}$ = 368
Put k = 1,2,3,........
K= 2 is divisible by 13
Number = 360 × 2 + 8 = 728
Sum of digits = 7 + 2 + 8 = 17

S3. Ans.(a)
Sol.

4 x 4 y 96
No. divisible by 88 is also divisible by 8 and 11 divisibility Rule for 8
= last three digit divide by 8.
Divisibility rule for 11 = sum of alternate digit are equal.
4+4+9 = x + y + 6
17 – 6 = x + y
$\boxed{x + y = 11}$
$\frac{y96}{8} \Rightarrow y = 2$
x = 9
x + 2y = 3

S4. Ans.(d)
Sol.

$\sqrt{1489.96}$
= 38.6

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S5. Ans.(b)
Sol.

LCM = 12, 16, 54
= 432
432K + 7
K=2
864 + 7 = 871
871 is the no. which leave reminder 7 when divided by 12, 16, 54.
and it is also divided by 13.
Sum of digits = 8 + 7 + 1 = 16

S6. Ans.(c)
Sol.

if A no. divisible by 72 is also divisible by 9 & 8.
74 X 29y6
x = 5   y = 3
(2 × 5 + 3 × 3) = 19

S7. Ans.(c)
Sol.

72 < 8, 9   Number should be divisible by both 8 and 9
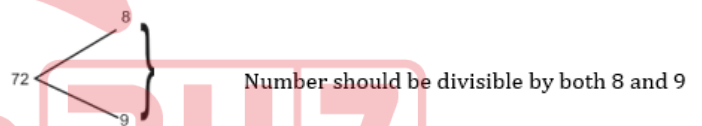
56×34 y 4
To be divisible by 8, y should be 2
to be divisible by 9, x should be 3
So, x+y= 2+3=5

S8. Ans.(a)
Sol.

$\frac{\sqrt{236196}}{\sqrt{100}} = \frac{486}{10}$

S9. Ans.(c)
Sol.
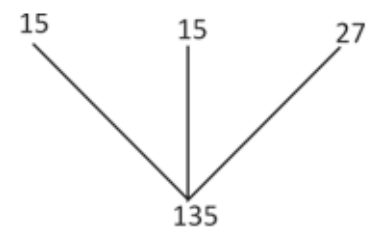
15   15   27
          135
135K+9 should be divisible by 11 so put k = 8
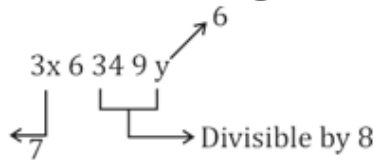Number is = 135×8+9=1089
Reg sum is = 1+0+8+9=18

S10. Ans.(a)
Sol.
Rule of divisibility by 8
Last three digits divide completely by 8
Rule of divisibility by 11
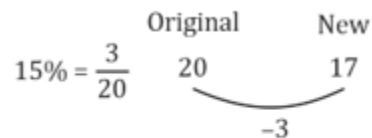Sum of alternate digit of no. is equal.

$$3x\ 6\ 34\ 9\ y^{\nearrow 6}$$

$\leftarrow_7$ |__| |__| → Divisible by 8

$= 2 \times 7 + 3 \times 6$
$= 14 + 8 = 32$

S11. Ans.(b)
Sol.

Original → New

$15\% = \dfrac{3}{20}$ 20 ___ 17

-3

$\dfrac{3}{17} \times 100 = \dfrac{300}{17}\%$

S12. Ans.(c)
Sol.
ATQ

$48\% = 3288$

$100\% = \dfrac{3288}{48} \times 100 = $ Rs. 6850.

S13. Ans.(c)
Sol.
Let $x = 10\ \&\ y = 10$
$xy^2 = 10 \times 10 \times 10 = 1000$ units.
Decreasing values of $x \& y$ by 20%
Expression $= xy^2 = 8 \times 8 \times 8 = 512$
Decreasing $= 1000 - 512 = 488$ units.
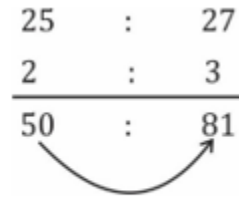% decrease $= \dfrac{488}{1000} \times 100 = 48.8\%$

S14. Ans.(a)
Sol.

R	H	V
100	100	1000000
130	73	1233700

% increase $= \dfrac{233700}{1000000} \times 100 = 23.37\%$

S15. Ans.(b)
Sol.

25	:	27
2	:	3
50	:	81

$\dfrac{31}{50} \times 100 = 62\%$

S16. Ans.(a)
Sol.
$87\frac{1}{2} \times 70 \times x = 2940$
$X = 4800$

S17. Ans.(a)
Sol.
$x \times \dfrac{30}{100} + 5 = x \times \dfrac{40}{100} - 10 \Rightarrow x = 150$
Min marks req. to pars $= \dfrac{150 \times 30}{100} + 5 = 50$

S18. Ans.(a)
Sol.
Let no. of visitors be 100

-15% ┌ 20 × 100 = 2000 ┐ $+25\%$
         └ 17 × x = 2500 ┘

$x = \dfrac{2500}{17} = 147$
% increase = 47%.

S19. Ans.(c)
Sol.
A.T.Q,

	Initial	Final
Price.	5	4
consumption	$\frac{3}{5}$	1
Expenditure.	3	4

Consumption change $= 1 - \dfrac{3}{5} = \dfrac{2}{5}$
$\dfrac{2}{3} \times 100 = 66\dfrac{2}{3}\%$ Increase.

S20. Ans.(c)
Sol.
$$\frac{100 * 25}{6.25 * 100} = \text{Rs. 4 per kg}$$

S21. Ans.(b)
Sol.
Depreciation Rate 1st year $\Rightarrow 10\% \Rightarrow \frac{1}{10}$
Depreciation Rate 2nd year $\Rightarrow 5\% \Rightarrow \frac{1}{20}$

	Original	Final
1st year	10	9
2nd year	20	19
3rd year	10	9
4th year	20	19
	40000 :	29241

29241r → 146205 Rs.
1r → 5 Rs.
40000r → 200000

S22. Ans.(d)
Sol.
Let he correct x% in the last 40 questions.
Using Alligation

40 Question		40 Question
65%		x%
	75%	
x − 75	:	10

$$\frac{x-75}{10} = \frac{40}{40}$$
$$x - 75 = 10$$
$$x = 85\%$$

S23. Ans.(a)
Sol.
30% → − 40
42% → +32
_____
12% → 72
1% → 6
Maximum marks
= 100%
= 100 × 6 = 600

S24. Ans.(d)
Sol.
ATQ,
[100 − (65 + 20)]r → 1305 Rs.
15r → 1305
1r → 87
100r → 8700
Total Investment → 8700

S25. Ans.(c)
Sol.
$$\frac{5A}{100} = \frac{15B}{100}$$
A : B ⇒ 3 : 1
$$\frac{10B}{100} = \frac{20C}{100}$$
B : C = 2 : 1
A : B : C = 6 : 2 : 1
1r → 2000
9r → 18000 Rs.

S26. Ans.(b)
Sol.
1st Wife → $\frac{1}{2}$
Remaining → $\frac{1}{2}$
2nd Wife → $\frac{1}{4}$
Remaining → $\frac{1}{2} - \frac{1}{4} = \frac{1}{4}$
3rd wife → $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$
Remaining → $\frac{1}{4} - \frac{1}{8} = \frac{1}{8}$
$\left(\frac{1}{2} + \frac{1}{4} + \frac{1}{8}\right)r → 130900$ kg
$\left(\frac{4 + 2 + 1}{8}\right)r → 130900$ kg
$\frac{7r}{8} → 130900$ kg
$1r → 130900 \times \frac{8}{7}$
⇒ 18700 × 8
⇒ 149600 kg

S27. Ans.(b)
Sol.
Product A → 20
Product B → 60
Remaining → 20
ATQ,
(60% − 20%) → 720
40% → 720
100% = 1800

S28. Ans.(b)
Sol.

Total → 20000
Total turnout → 16000
Total valid ⇒ $16000 \times \frac{84}{100} \Rightarrow 13440$
Losing candidate got ⇒ $20000 \times \frac{20}{100} \Rightarrow 4000$
Winner got ⇒ $13440 - 4000 = 9440$
$\% \Rightarrow \frac{9440}{20000} \times 100$
$\Rightarrow 47.2\%$

S29. Ans.(d)
Sol.

Total Marks = 250
Overall Marks ⇒ $250 \times \frac{78}{100} = 195$
Marks scored in English & History together $= \frac{65}{100} \times 100 + \frac{85}{100} \times 100 = 65 + 82 = 147$
Marks in Sociology $= 195 - 147 = 48$
$\% = \frac{48}{50} \times 100 = 96\%$

S30. Ans.(b)
Sol.

Let total employees → 100
Female employees → 30
Male employees → 70
Females earning greater than 8000 Rs. $= \frac{30 \times 30}{100} = 9$
Men earning more than 8000 Rs. $= 70 \times \frac{20}{100} = 14$
Required $\% = \frac{14+9}{100} \times 100 = 23\%$

S31. Ans.(a)
Sol.

12 − 780516
1 − 65043
4 − 260172

S32. Ans.(b)
Sol.

50P	5	250P
25P	8	200P
1Rs	1	100P
		550P ——— 5500
		1 ——— 10

No .of coins of 25P = 80

S33. Ans.(b)
Sol.

$8x + 7x = 1200$
$x = 80$

No. of urban new member = 725 − 640
= 85

S34. Ans.(d)
Sol.

A : B : C
2   3
I×3   2×3

A : B : C = 2 : 3 : 6
C's share $= \frac{406736}{11} \times 6 = 221856$

S35. Ans.(c)
Sol.

A.T.Q A+B+C = 777
A : B : C
7   9
3×3 7×3
A : B : C
7 : 9 : 21
37 → 777
1 → 21
2ⁿᵈ No   9 → 189

S36. Ans.(d)
Sol.
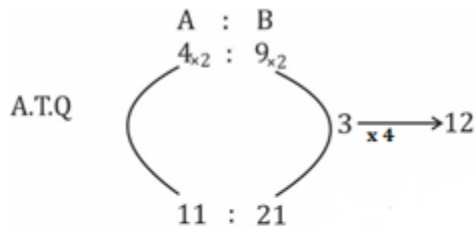
Sum of original number = (18+8)× 4

$$= 26× 4$$
$$= 104$$

S37. Ans.(b)
Sol.

$5x + 7x + 9x = 21x$ _____ 8288

$9x$ _____ $\frac{8288}{21x} × 9x = 3552$

S38. Ans.(c)
Sol.
$x^2 = 135 × 540$

$x = \sqrt{135 × 540}$

$= 270$

S39. Ans.(d)
Sol.

Mean proportion $= \sqrt{\frac{49×169}{100}} = \frac{7×13}{10}$

$=9.1$

Third proportion $\frac{3}{7} = \frac{7}{x}$

$x = \frac{49}{3}$

$\therefore 9.1 : \frac{49}{3} = 27.3 : 49 = 39 : 70$

S40. Ans.(b)
Sol.
A.T.Q.

No. of brown socks = x

Price of brown socks = y

Price of black socks = 2y

So, $4y + x × 2y = \frac{150}{100}(4 × 2y + xy)$

$4 + 2x = \frac{3}{2}(8 + x)$

$x = 16$

Req. ratio = 4 : 16 = 1 : 4

S41. Ans.(c)
Sol.

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

L.C.M. of 2, 3 and 4 = 12

On multiplying by a number throughout,

the ratio remains same. Here, we multiply by 12.

$\frac{1}{2} × 12 : \frac{2}{3} × 12 : \frac{3}{4} × 12$

$6 : 8 : 9 = 6 + 8 + 9 = 23$

23 units = 872

1 unit = 37.91

= 1st part = 6 units = 6 × 37.91= 227.46

S42. Ans.(b)
Sol.

Fourth proportional to 5, 8, 15

$5 : 8 :: 15 : ?$

$\frac{5}{8} = \frac{15}{x}$ = x = 24

Shortcut,

5 $\xrightarrow{×3}$ 15

8 $\xrightarrow{×3}$ 24

S43. Ans.(b)
Sol. Let the two numbers be a and b

$\frac{a}{b} = \frac{3}{5}$ = 5a = 3b ... (i)

$\frac{a-9}{b-9} = \frac{12}{23}$ = 23a – 207 = 12b – 108

= 23a – 12b = 99 ... (ii)

$b = \frac{5a}{3}$ From (i) ... (iii)

Using (ii) and (iii)

$23a – 12 × \frac{5a}{3} = 99 = 3a = 99$

= a = 33

S44. Ans.(d)
Sol. Let the two numbers be a and b.

$a – (40\% \text{ of } a) = \frac{2}{3}b$

$= \frac{60a}{100} = \frac{2}{3}b$

$\frac{b}{a} = \frac{60×3}{2×100} = \frac{9}{10}$

= Ratio of the second number to the first number

= 9 : 10

S45. Ans.(c)
Sol.

$$\frac{5a+3b}{2a-3b} = \frac{23}{5}$$

Dividing numerator and denominator by 'b'

$$= \frac{5\left(\frac{a}{b}\right)+3}{2\left(\frac{a}{b}\right)-3} = \frac{23}{5}$$

Let $\frac{a}{b} = x = = \frac{5x+3}{2x-3} = \frac{23}{5}$

$25x + 15 = 46x - 69 = 21x = 84$

$x = 4 = \frac{a}{b} = 4$

$= a : b = 4 : 1$

S46. Ans.(c)
Sol.

P : Q = 8 : 15

P : Q : R = ?

Q : R = 3 : 2) × 5 = Q : R = 15 : 10

P : Q = 8 : 15 = 15 : 10 = Q : R

P : Q : R = 8 : 15 : 10

S47. Ans.(a)
Sol.

P : Q = 8 : 15   ... (i)

Q : R = 5 : 8) × 3 = Q : R = 15 : 24   ... (ii)

From (i) and (ii)

P : Q : R = 8 : 15 : 24   ... (iii)

R : S = 4 : 5) × 6 = R : S Û 24 : 30   ... (iv)

P : Q : R = 8 : 15 : 24 = 24 : 30 = R : S

P : Q : R : S = 8 : 15 : 24 : 30

$= P : S = 8 : 30 = 4 : 15$

S48. Ans.(a)
Sol.

Let the fourth proportional to 4, 16, 7 be x.

4 : 16 :: 7 : x

$$\frac{4}{16} = \frac{7}{x}$$

$= 4x = 16 \times 7$

$= x = 4 \times 7 = 28$

S49. Ans.(b)
Sol.

Let the mean proportion be = r.

$9 : r :: r : 64 = \frac{9}{r} = \frac{r}{64}$

$r^2 = 9 \times 64 = r = 3 \times 8 = 24$

S50. Ans.(a)
Sol.

Duplicate ratio = ratio of squares

Duplicate ratio of

$2 : 7 = 2^2 : 7^2 = 4 : 49$