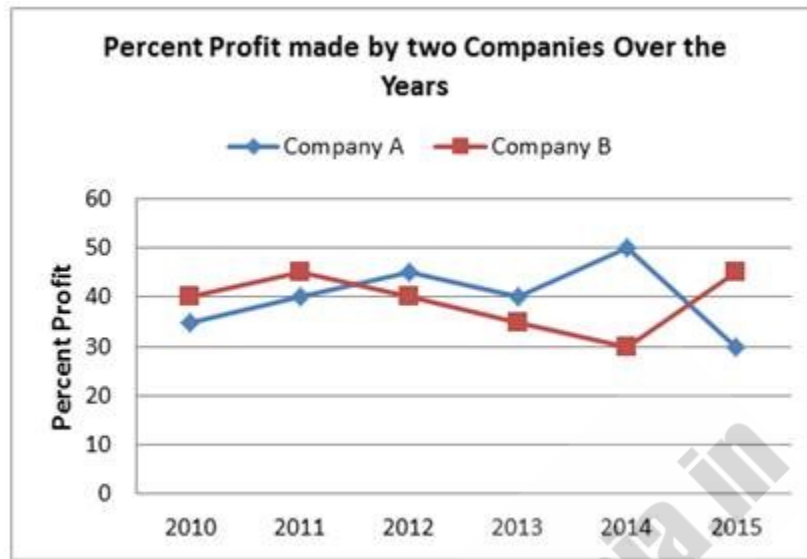# Teachingninja.in

SBI PO Mains Paper (2016) Quantitative Aptitude

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SBI PO Mains 2016 Quantitative Aptitude Question Paper

Directions (1-5): *Study the following graph carefully to answer the questions that follow*

Percent Profit made by two Companies Over the Years

1. What is the respective ratio of the amount of profit earned by company A and B together in 2011?
   A. 2 : 9
   B. 7 : 4
   C. 15 : 13
   D. Cannot determine
   E. None of these

2. If the amount of profit earned by company A in the year 2013 was Rs 2.5 lakh. What was its expenditure in that year?
   A. 6.75 lakh
   B. 5.75 lakh
   C. 6.25 lakh
   D. Cannot determine
   E. None of these

3. What is the average percent profit earned by company B over all the years together in (approx)?
   A. 37
   B. 39
   C. 42
   D. Cannot determined
   E. None of these

4. If in the year 2010 the expenditure incurred by company A and B was the same what was the respective ratio of the income of company A and B in that year?

   A. 28 : 27   B. 27 : 28
   C. 19 : 13   D. 23 : 14
   E. None of these

5. In the year 2014 the income of both the companies A and B was the same what was the respective ratio of expenditure of company A to the expenditure of company B in that year?
   A. 15 : 13   B. 25 : 21
   C. 21 : 25   D. 13:15
   E. None of these

Direction (6-10): *Study the pie–chart carefully to answer the following questions*
Percentage of students enrolled in different activities in a school (Total student = 4000)
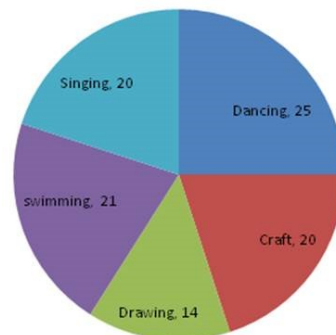
Percentage break up of girls enrolled in these activities out of the total students. (total number of girls = 2500)
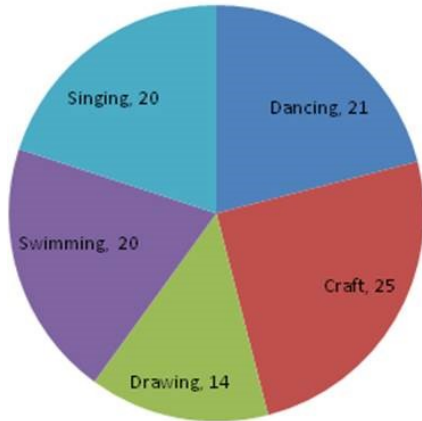
6. What is the approximate percentage of boys in the school?
   A. 52%   B. 56%
   C. 35%   D. 40%
   E. 38%

7. How many boys are enrolled in Singing and Craft together?
   A. 475   B. 520
   C. 640   D. 810
   E. None of these

8. What is the total number of girls enrolled in Swimming and Drawing together?
   A. 800   B. 850
   C. 840   D. 920
   E. None of these

9. Number of girls enrolled in Dancing is what per cent of total number of students in the school(rounded off to two digits after decimal)
   A. 16.25%   B. 14.25%
   C. 13.12%   D. 9.65%
   E. None of these

10. What is the respective ratio of number of girls enrolled in Swimming to the number of boys enrolled in Swimming?
    A. 3:4   B. 7:9
    C. 17:25   D. 25:17
    E. None of these

**Directions:** *Study the following questions and choose the correct answer.*

State wise production of different crops for the year 2014-2015 (in million tonnes)

State	Rice	Wheat	Pulses	Total weight of crops
Uttar Pradesh.	17.18	–	12.76	45.91
West Bengal.	–	6.81	5.35	30.35
Madhya Pradesh	13.67	13.72	–	31.71
Bihar	–	12.86	3.11	27.91
Punjab	12.36	–	2.36	29.14
All India	68.64	54.23	–	138.07

11. W.B. produces wheat approximately what percent of the total wheat produced in India?
    A. 12.5 %   B. 13.5 %
    C. 18%   D. 15%
    E. None of These

12. The amount of rice produced by U.P. is more than the amount of pulses produced by the other four states listed in the table, by
    A. 2.97 m tones   3.16 m tones
    C. 2.04 m tones   D. 4.89 m tonnes
    E. None of These

13. What is difference of the total wheat production was produced by states other than those given in the table?
    A. 6.55 million tonnes
    8.55 million tonnes
    C. 19.55 million tonnes
    D. 9.55 million tonnes
    None of These

14. Bihar produced approximately what per cent of the all India production of all the three crops taken together?
    A. 20.21%   B. 26.2%
    C. 22.18%   D. 22.52%
    E. None of These

15. What is total wheat production was produced by three states Punjab, Bihar and West Bengal together?
    A. 34 million tonnes
    B. 36 million tonnes
    C. 24 million tonnes
    D. 38 million tonnes
    E. None of These

Number of Students Playing Carrom, Cricket and Hockey from Different Schools
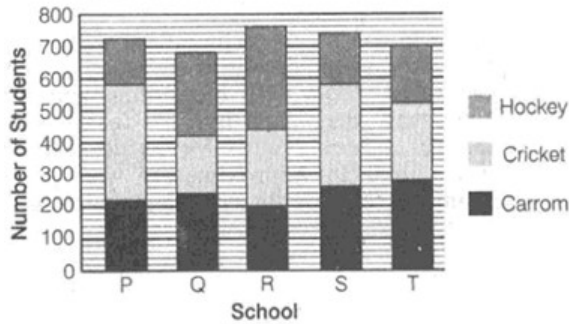
16. Total number of students playing Carrom and Hockey together from school P is what per cent of the total number of students playing these two games together from school R?

    A. $68\dfrac{3}{16}$ B. $62\dfrac{3}{13}$

    C. $69\dfrac{3}{13}$ D. $63\dfrac{3}{13}$

    E. $66\dfrac{3}{13}$

17. If the number of students playing each game in school S is increased by 15% and the number of students playing each game in school Q is decreased by 5%, then what will be the difference between number of students in schools S and Q?

    A. 54 B. 218
    C. 356 D. 224
    E. 205

18. If out of the students playing Cricket from schools Q, S and T 40%, 35% and 45% respectively got selected for state level competition, what was the total number of students got selected for State level competition from these three schools together?

    A. 346 B. 241
    C. 292 D. 284
    E. 268

19. Total number of students playing Hockey from all schools together is approximately what per cent of the total number of students playing Cricket from all schools together?

    A. 84 B. 74
    C. 72 D. 79
    E. 70

20. From school P, out of the students playing Carrom, 40% got selected for State level competition. out of which 25% further got selected for National level competition. From school T, out of the students playing Carrom, 45% got selected for State level competition, out of which two-third further got selected for National level competition. What is the total number of students playing carrom from these two schools who got selected for National level competition?

    A. 106 B. 98
    C. 112 D. 108
    E. 96

21. **Direction:** *Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question.*
    What is the ratio of the length of a rectangle to the side of a square?
    I. The area of the square is 576 sq cm and the area of the rectangle is 600 sq cm.
    II. The breadth of the rectangle is half the side of the square.

    A. The data in Statement I alone are sufficient to answer the question, while the data in Statement II alone are not sufficient to answer the question.
    B. The data in Statement II alone are sufficient to answer the question, while the data in Statement I alone are not sufficient to answer the question.
    C. The data in either Statement I alone are in Statement II alone are sufficient to answer the question.
    D. The data in both the Statements I and II are not sufficient to answer the question.
    E. The data in both the Statements I and II together are necessary to answer the question.

22. **Directions:** *In each of the following questions, a question is followed by information given in them Statements I, II and III. You have to study the question along with the statements and decide the information given in which or the statements/ is necessary to answer the question.*

What is the cost of flooring the rectangular hall?
I. Length and the breadth of the hall are in the ratio of 3:2
II. Length of the hall is 48 m and cost of flooring is ₹ 850 Per sq.m.
III. Perimeter of the hall is 160 m and cost of flooring is ₹ 850 per sq m
A. I and II
B. I and III
C. Only III
D. I and either II or III
E. Any two of the three

23. **Direction:** *In these questions, a question is given followed by information in three statements. You have to consider the information in all the three statements and decide the information in which of the statement(s) is not necessarily required to answer the question and therefore can be dispensed with. Indicate your answer accordingly*

How many students from institute 'A' got placement?
I. Number of students studying in institutes A and B are in the ratio of 3:4 respectively.
II. Number of students who got placement from institute B is 120% of the number of students who got placement from institute A
III. 80% of the students studying in institute B got placement.
A. None of the statements can be dispensed with
B. Only I
C. Only II
D. Any one of the three
E. Question cannot be answered even with the information in all three statements

24. **Directions:** *Each of the questions below consists of a question and two statements numbered, I and II given below it. You have to decide whether the data given in the statements are sufficient to answer the question. Read both statements and choose the most appropriate option.*

Among M, N, D, P and K, who earns more than only the least earner among them?
I. N earns more than M and P but less than only D.
II. M earns more than P who earns more than K.

A. If the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
B. The data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
C. The data either in statement I alone or in statement II alone are sufficient to answer the question.
D. If the data in statement I and II together are not sufficient to answer the question.
E. The data in both statements I and II together are necessary to answer the question.

25. **Directions:** *In each of these questions, a question is given followed by information in three statements. You have to find out the data in which statement(s) is sufficient to answer the question and mark your answer accordingly.*
What are the marks scored by Abhijit in English?
I. Marks scored by Abhijit in Maths are more than his marks in Science by 20.
II. Total marks scored by Abhijit in Maths, Science and English are 198.
III. Marks scored by Abhijit in Science are more than his marks in English by 12.
A. Any two of the three
B. Only II and III
C. All I, II and III
D. Question cannot be answered even with the information in all the three statements
E. None of the above

26. **Directions:** *Study the information carefully to answer the following questions:*
An urn contains 5 red, 3 green, 2 blue and 4 yellow marbles.
If three marbles are picked at random, what is the probability that one is green and two are yellow?
A. 3/14   B. 2/91
C. 9/182   D. 7/545
E. None of these

27. If two marbles are picked at random, what is the probability that either both are red or both are green?
A. 5/7   B. 5/14
C. 1/7   D. 1/14
E. None of these

28. **Directions:** *Find the appropriate relation for quantity 1 and quantity 2 in the following question:*
Quantity I: the unit digit in $(6817)^{754}$
Quantity II: the unit digit in $(3^{65} \times 6^{59} \times 7^{71})$
A. Quantity I > Quantity II
B. Quantity I < Quantity II
C. Quantity I ≥ Quantity II
D. Quantity I ≤ Quantity II
E. No relation

29. **Directions:** *Find the appropriate relation for quantity 1 and quantity 2 in the following question:*
An artificial kund is filled by three pipes with uniform flow. The first two pipes operating simultaneously fill the kund at the same time during which the kund is filled by the third pipe alone. The second pipe fills the kund 5 hours faster than the first pipe and 4 hours slower than the third pipe.
Quantity 1: The time required by the first pipe?
Quantity 2: Time taken by all three pipes to fill the Kund simultaneously
A. Quantity 1 > Quantity 2
B. Quantity 1 ≥ Quantity 2
C. Quantity 1 < Quantity 2
D. Quantity 1 ≤ Quantity 2
E. Quantity 1 = Quantity 2 or no relation.

30. **Directions:** *Find the appropriate relation for quantity1 and quantity2 in the following question:*
Quantity 1: In an examination, Ankita scored 35 marks less than Puneeta. Puneeta scored 65 more marks than Meenakshi. Rakhi scored 115 marks, which is 20 marks more than Meenakshi's. Simpy scored 108 marks less than the maximum marks of the test. What approximate percentage of marks did Simpy score in the examination, if she got 67 marks more than Ankita?
Quantity 2: The length of a rectangle is increased by 60%. By what percent would the width have to be decreased to maintain the same area?
A. Quantity1 < Quantity2
B. Quantity1 ≤ Quantity2
C. Quantity1 ≥ Quantity2
D. Quantity1 > Quantity2
E. None of these

Directions (31-32): *Read the following information to answer the questions:*
There are 650 candidates from five different states to participate in a competition. From state 1, the number of candidates is 12% of the total candidates. From state 2 there are one-fifth of the total candidates. There are 8% of total candidates from state 3. The number of candidates from state 4 and state 5 is equal.

31. How many candidates did participate from state 4?
A. 390   B. 195
C. 78   D. 187
E. None of these

32. What is the ratio between the number of candidates from state 2 and state 3?
A. 3 : 5   B. 2 : 5
C. 5 : 2   D. 5 : 3
E. None of these

Directions (33-35): *Read the following information to answer the questions given below:*
24 men can do a work in X days and 32 women can do the same work in (X + 8) days. The ratio of work done by 15 men and 12 women in the same time is 3:1.

33. What is the value of X?
A. 15   B. 10
C. 12   D. 18
E. None of these

34. In how many days, the work will be completed if 5 men and 4 women work together?
A. 24 days   B. 18 days
C. 36 days   D. 48 days
E. 30 days

35. 10 men and 24 women works for 6 days on the same work and the remaining work is done by 18 boys in 18 days. Then find the number of days in which 12 boys can complete the whole work.
A. 54 days   B. 45 days
C. 63 days   D. 35 days
E. None of these

1. D
Cannot be determined because profit amount cannot be determined.

2. C
Let the expenditure of company A in 2013 was x then
$40 = \frac{2.5}{x} \times 100 \Rightarrow x = 6.25$

3. B
Required Average = (40+45+40+35+30+45)/6
= 39.16 = 39(approx.)

4. B
Let the expenditure of Companies A and B in 2010 be Rs A lakh each.
For company A
$35 = \frac{A_1 - A}{A} \times 100 \Rightarrow 135A = 100A_1 \ldots\ldots (I)$
For company B
$40 = \frac{A_2 - A}{A} \times 100 \Rightarrow 140A = 100A_2 \ldots\ldots (II)$
Dividing (I) by (II) we get x
Required Ratio: $A_1/A_2 = 135/140 = 27/28$

5. D
$A = 50 = \frac{x - E_1}{E_1} \times 100$
$150 E_1 = 100x$ --------(I)
$B = 30 = \frac{x - E_2}{E_2} \times 100$
$130 E_2 = 100x$ --------(I)
Required Ratio: $E_1/E_2 = 130/150 = 13 : 15$

6. E
Boys % = $\frac{(4000 - 2500)}{4000} \times 100 = 38\%$ approx.

7. A
Total students enrolled in singing & craft
$\frac{4000 \times (20 + 20)}{100} = 1600$
Total girls enrolled in singing & craft
$\frac{2500 \times (20 + 25)}{100} = 1125$
No. of boys enrolled = 1600 – 1125 = 475

8. B
$\frac{2500 \times (20 + 14)}{100} = 850$

9. C
No. of girls enrolled in dancing
$= \frac{21 \times 2500}{100} = 525$
$\% = \frac{525}{4000} \times 100 = 13.12\%$

10. D
Total students in swimming = 840
No. of girls enrolled in swimming
$= \frac{2500 \times 20}{100} = 500$
No. of boys enrolled in swimming = 340
Ratio = 500 : 340 = 25 : 17

11. A
Total wheat produces in
W.B. = 6.81 million tonnes
Total wheat produces in India
= 54.23 million tonnes
Required percentage
= (6.81*100)/54.23 = 12.5%

12. C
Total amount of rice produced by
U.P = 17.18 million tonnes
Total amount of pulses produced by the other four states
= (5.35+4.32+3.11+2.36)
= 15.14 million tonnes
Required answer = 17.18 - 15.14
= 2.04 million tonnes

13. D
State that is not in list is produced
= (15.97+6.81+13.72+12.86+14.42) - 54.23
= 63.78 - 54.23 = 9.55 million tonnes

14. A
Required percentage
= (27.91*100)/138.07 = 20.21%

15. A
Total wheat production was produced by three states Punjab, Bihar and West Bengal =
(14.42+12.86+6.81) = 34 million tonnes

16. C
Total number of students playing Carrom and Hockey
together from school P = 220 + 140 = 360
Total number of students playing Carrom and Hockey from
School R = 200 + 320 = 520
Therefore, required percentage

$$= \frac{360}{520} \times 100\% = 69\frac{3}{13}\%$$

17. E
New number of students in school
S =115%of 740 = 851
New number of students in school
Q = 95% of 680 = 646
Therefore, required difference = 851- 646= 205

18. C
Number of students who got selected for state level competition from schools Q, S and T
= 40% of 180 + 35% of 320 + 45%of 240
= 72 + 112 + 108
= 292

19. D
Total number of students playing Hockey from all the schools together = 140 + 260+ 320 + 160 + 180 = 1060
Total number of students playing cricket from all the schools together = 360 + 180 + 240 + 320 + 240 = 1340

Therefore, required percentage = $\frac{1060}{1340} \times 100\%$

= 79%

20. A
Number of students who got selected for National level competition from school P (In Carrom)

$$= \frac{25}{100} \times \frac{40}{100} \times 220 = 22$$

Number of students who got selected for National level competition from school T (in Carrom)

$$= \frac{2}{3} \times \frac{45}{100} \times 280 = 84$$

Therefore, total number of students (Playing

carrom) who got selected for National level from these two schools
= 22 + 84= 106

21. E
From statement I, Area of square = 576 sq cm
∴ Side of square = 24 cm
Area of rectangle = $l \times b$
$l \times b$ = 600 sq cm
From statement II, Suppose the breadth of the rectangle is x. Then side of the square = $2x$
Combining both the information, we have
x =12 cm
Now, $l \times 12$ = 600

$$\therefore l = \frac{600}{12} = 50 \text{ cm}$$

$$\therefore \text{ Required ratio } = \frac{50}{24} = \frac{25}{12} = 25:12$$

Both the statements together are sufficient.

22. E
From I and II,
Length = $3x$ = 48 m
∴ x = 16
Breath = $2x$ = 32 m
Hence, Area of floor = 48 × 32
Cost of flooring = 48 × 32 × 850 = ₹ 1305600
From I and III, 2(l +b) = 160
2($3x$ + $2x$) = 160
$10x$ = 160
∴ x = 16
∴ Length = 3 × 16 = 48 m
Breadth = $2x$ = 32m
Cost of flooring = (48 × 32) × 850 = ₹ 1305600
Similarly, from II and III, we can find
l = 48 m
b = 32 m
and Total cost of flooring = ₹ 1305600

23. E
From I No. of students studying in A and B are 3x and 4x respectively.
From II No. of students studying in B who got placement
= (4x × 80) ÷ 100 = 16x/5
Hence Question cannot be answered even with the information in all the three statements
Hence option E is correct

24. E
From I and II: D > N > M > P > K.

25. C
Suppose marked scored by Abhijit in English = x
From statement I,
Marks in science = x + 12
From statement III,
Marks in mathematics = x + 12 + 20
= x + 32
From statement II,
English + Science + Mathematics = 198
x + x +12 + x + 38 = 198
3x = 154
x = 154/3
All I, II and III are required to find answer.

26. C
Required probability
$$= \frac{^3C_1 \times {}^4C_2}{^{14}C_3} = \frac{3 \times 6}{364} = \frac{9}{182}$$

27. C
Required probability
$$= \frac{^5C_1 \times {}^3C_2}{^{14}C_2} = \frac{(10+3)}{91} = \frac{13}{91} = \frac{1}{7}$$

28. A

Unit digit in $7^4 = 1$ ∴ Unit digit in 7^{754} = Unit digit in $\left\{7^{4^{188}} \times 7^2\right\}$

= Unit digit in $(1 \times 49) = 9$

Unit digit in $3^4 = 1$ ∴ Unit digit in $3^{65} = 3^{64} \times 3^1 = 3$

Unit digit in $6^{59} = 6$, Unit digit in 7^{71} = Unit digit in $7^{4^{17}} \times 7^3$

Unit digit in $7^3 = 3 \rightarrow$ Required digit = Unit digit in $(3 \times 6 \times 3)$ = Unit digit in 54
= 4

so Quantity I > Quantity II

29. A
Quantity 1:
Let the first pipe alone takes x hours to fill the tank.
⇒The second and third pipes will take (x-5) and (x-9) hours respectively.
According to the given information:
∴ $\frac{1}{x} + \frac{1}{x-5} = \frac{1}{x-9}$
⇒ $\frac{(x-5)+x}{x(x-5)} = \frac{1}{x-9}$
⇒ (x-9)(2x-5) = $x^2 - 5x$
⇒ $2x^2 - 5x - 18x + 45 = x^2 - 5x$
⇒ $x^2 - 18x + 45 = 0$
⇒ (x-15) (x-3) = 0
⇒ x = 15, 3
The first pipe can take 15 hours to fill the kund.
∵ 3 hours doesn't satisfy the statement.
Quantity 2:
∴ Time taken by second pipe = x-5
⇒ Time taken by second pipe = 15-5 = 10hours
∴ Time taken by third pipe = x -9
⇒ Time taken by third pipe = 15- 9 = 6 hours
Now,

⇒ Net part filled in 1 hour = $\frac{1}{15} + \frac{1}{10} + \frac{1}{6}$
⇒ Net part filled in 1 hour = $\frac{4+6+10}{60}$
⇒ Net part filled in 1 hour = $\frac{20}{60} = \frac{1}{3}$
∴The Kund will be full in 3/1 hours if all the pipes are opened simultaneously
Now, comparing
15 > 3
Thus, Quantity 1 > quantity 2

30. D
Quantity1-
Rakhi's marks= 115
Meenakshi's marks= 115 - 20 = 95
Puneeta's marks= 95 + 65= 160
Ankita's marks=160 - 35= 125
Simpy's marks= 125+ 67= 192
Total maximum marks= 192 + 108= 300
Required percentage marks of Simpy
$$= \frac{192}{300} \times 100 = 64\%$$
Quantity2-
Let length and breadth be 100.

After increase in length it become 160, then reduction in breadth be 'x'

Now, 160*x= 100*100

Hence, $x = \frac{10000}{160} = 62.5\ i.e,$

Reduction in breadth be $100 - 62.5 = 37.5\%$

Hence, Quantity1 > Quantity2

31. B

Number of candidates from state 4 and state 5

$$= \frac{650 \times 60}{100} = 390$$

$\therefore$ Number of candidates from state 4

$$= \frac{390}{2} = 195$$

32. C

Required ratio = 20 : 8 = 5 : 2

33. B

$$\frac{M_1 x D_1}{W_1} = \frac{M_2 x D_2}{W_2}$$

$$\frac{15m}{3} = \frac{12w}{1}$$

5m = 12w

m = 12, w = 5

given, 24m × X days = 32w × (X+8) days

24 × 12 × X = 32 × 5 × (X + 8)

$9X = 5X + 40$

$4X = 40$

$X = 10\ days$

34. C

35. A

(10m + 24w) × 6 + 18B × 18 = 2880

(120m + 24 × 5) × 6 + 18B × 18 = 2880

1440 + 18B × 18 = 2880

B = 40 / 9

no. of days = $\dfrac{total\ work}{12\,boys}$

no. of days = $\dfrac{2880}{12 \times \dfrac{40}{9}}$

no. of days = $\dfrac{2880 \times 9}{12 \times 40}$

no. of days = 54 days

***