

Patterns

Type I : How to find the missing term or next term (number, letter or figure) in a series to continue the given series?

- Identify the order of series (descending or ascending order).
- Observe the pattern using operations: Addition, Subtraction, Skip counting and Reverse counting.
- Identify the order of alphabetical series either from A to Z or Z to A.
- Numbering of alphabets either starting from A or starting from Z.
- Skipping letters.

Type II : How to find the missing number in a number pattern?

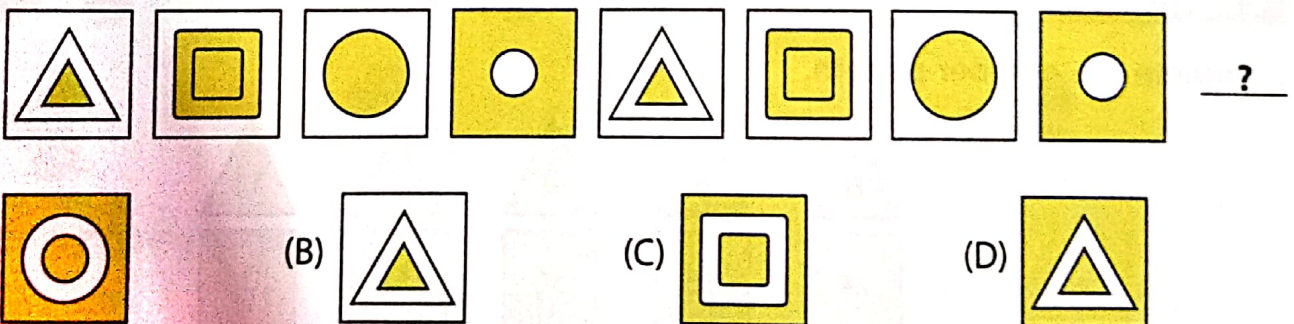
- To find the missing term in the number pattern, identify the rule followed in given terms of the pattern using mathematical operations and tables.

Type III : How to find the missing part in the figure pattern?

- Complete the figure pattern by drawing its incomplete part in the pattern.

Example : 1

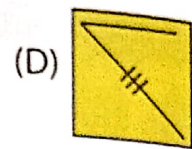
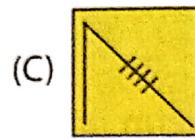
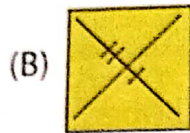
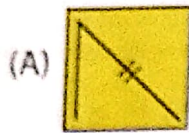
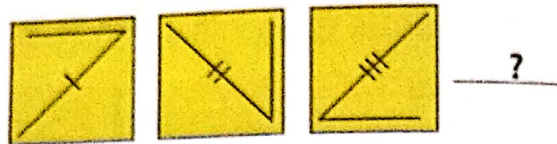
Look closely at the figures in the boxes below. Find the rule followed in the pattern and the missing figure.



Explanation (B) : Each figure in the row repeats itself after three figures.

Example : 2

Find the rule followed in the figure pattern and the missing figure.

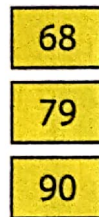


Explanation (C) : Each figure is formed by adding 1 short line on the slanting line. So, the missing figure is Figure (C).

Example : 3

Find the missing number in the number pattern-II, if the series in both patterns follow the same rule.

Pattern-I



Pattern-II



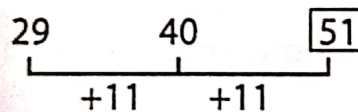
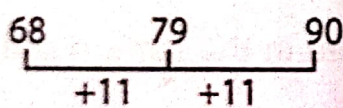
(A) 61

(B) 40

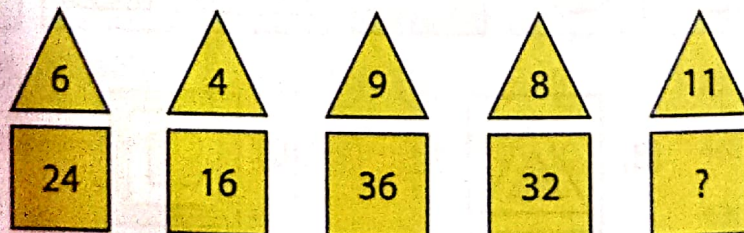
(C) 71

(D) 51

Explanation (D) : Observing the pattern followed in pattern-I, we can get the missing term in pattern-II.

**Example : 4**

Complete the number pattern.



(A) 40

(B) 34

(C) 44

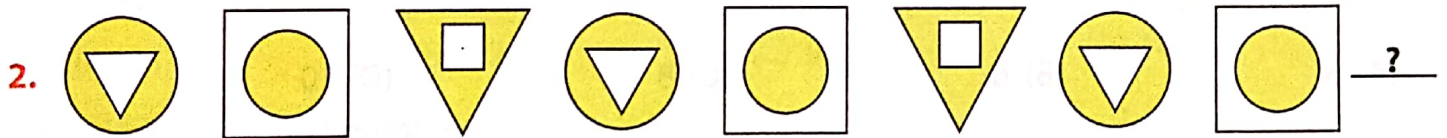
(D) 54

Explanation (C) : Number in the square is found by adding the number in the above triangle four times.

$$\begin{aligned} 24 &= 6 + 6 + 6 + 6, & 16 &= 4 + 4 + 4 + 4 \\ 36 &= 9 + 9 + 9 + 9, & 32 &= 8 + 8 + 8 + 8 \\ 44 &= 11 + 11 + 11 + 11 \end{aligned}$$

EXERCISE

Direction (1 - 3) : Which is the next figure?

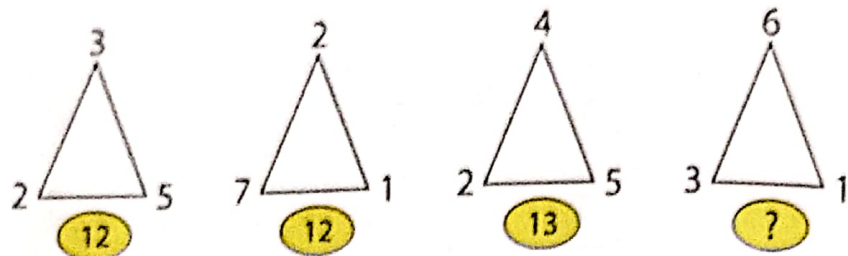


4. Find the missing number in the given pattern.

21, 31, 41, 51, _____ ?

- (A) 61 (B) 71 (C) 60 (D) 81

5. Find the missing number.



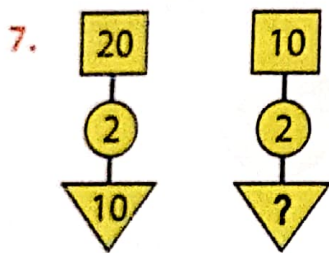
- (A) 12 (B) 13 (C) 11 (D) 14

6. In the question below, there is a relationship between the numbers in the first and second rows. Find the missing number.

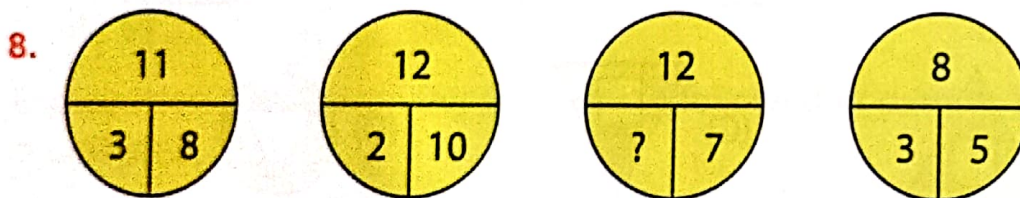
First Row	:	2	3	4	5
Second Row	:	6	?	12	15

- (A) 6 (B) 9 (C) 10 (D) 5

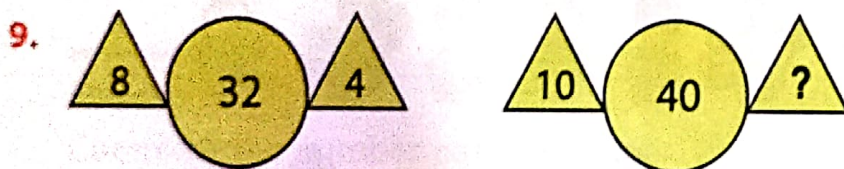
Direction (7-9) : Which of the following replaces the question mark (?) in given number patterns?



- (A) 5 (B) 6 (C) 8 (D) 10



- (A) 10 (B) 4 (C) 5 (D) 6



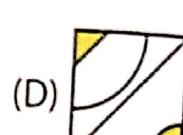
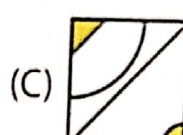
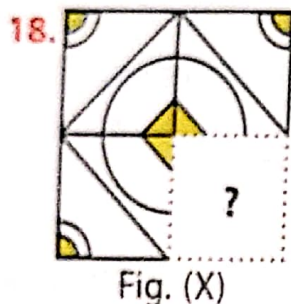
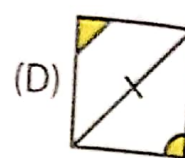
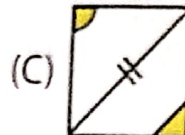
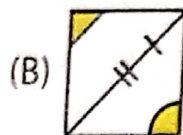
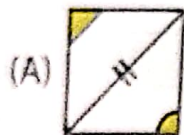
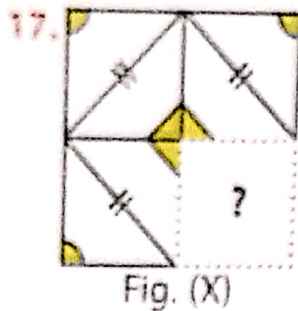
- (A) 12 (B) 5 (C) 8 (D) 4

10. Complete the number pattern.



- (A) 30 (B) 48 (C) 40 (D) 45

Direction (17-18) : Which of the following figures will complete the Fig. (X)?



19. Find the missing number, if a certain rule is applied either row-wise or column-wise.

(A) 48

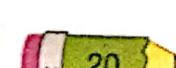
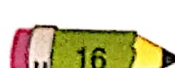
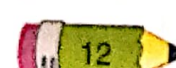
(B) 38

(C) 18

(D) 28

48	38	94
15	10	49
33	?	45

20. Find the next figure in the given pattern.



?



21. Find the missing number, if the same rule is followed in all the three figures.

(A) 10

(B) 9

(C) 7

(D) 8



22. If the same pattern is followed in all the three figures, then find the missing number.

(A) 35

(B) 28

(C) 25

(D) 23

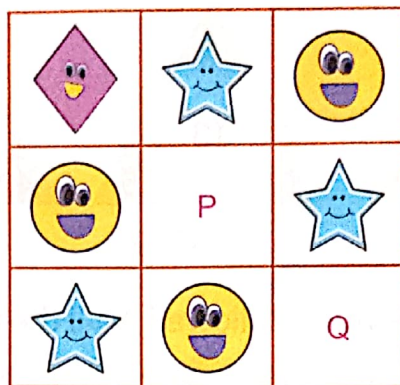


Figure (1)

Figure (2)

Figure (3)

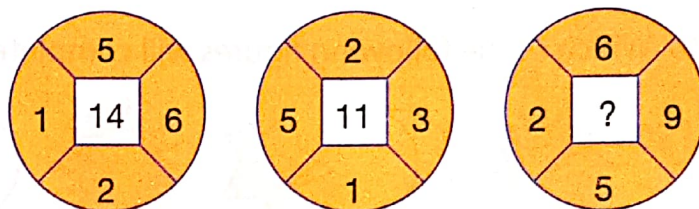
23. _____ and _____ will come in place of P and Q respectively.



- (A) , (B) , (C) , (D) ,

24. Find the missing number, if the same rule is followed in all the three figures.

- (A) 24
(B) 22
(C) 23
(D) 20



25. Study the pattern 1, 2 and 3. Using the same pattern, tell the number of mice in Pattern 6.



Pattern 1



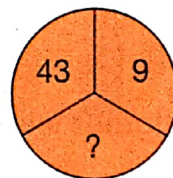
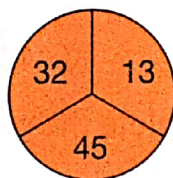
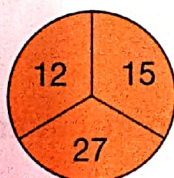
Pattern 2



Pattern 3

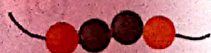
- (A) 15 (B) 12 (C) 13 (D) 20

26. Find the missing number, if same rule is followed in all the three figures.



- (A) 52 (B) 48 (C) 45 (D) 55

27. Study the patterns 1, 2 and 3. Using the same pattern, tell the number of beads in Pattern 6.



Pattern 1



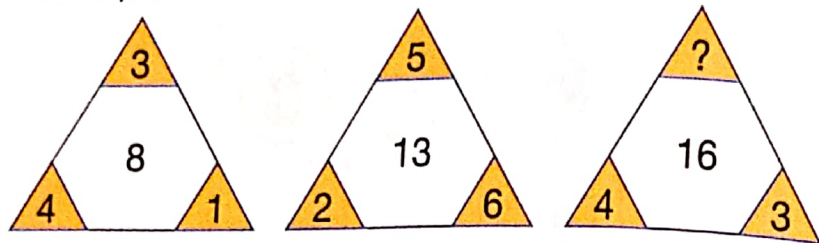
Pattern 2



Pattern 3

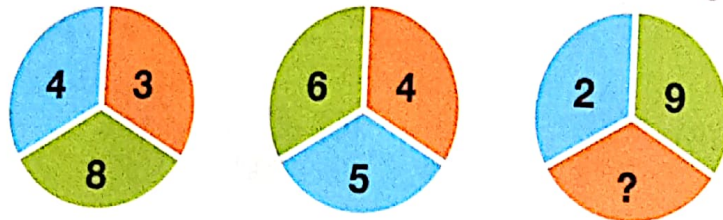
- (A) 19 (B) 29 (C) 22 (D) 24

28. Find the missing number, if same rule is followed in all the three figures.



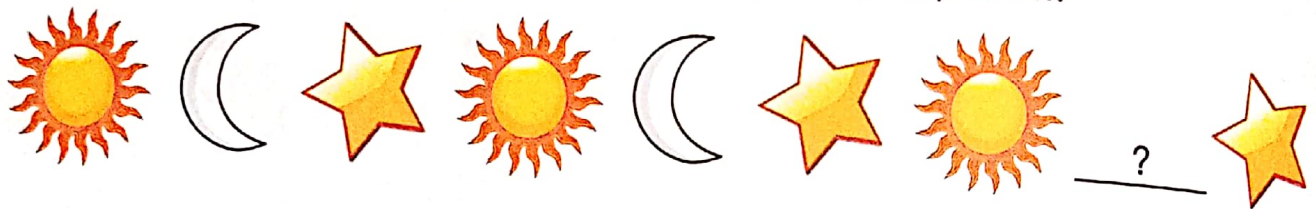
- (A) 10 (B) 8 (C) 9 (D) 7

29. Find the missing number, if same rule is followed in all the three figures.



- (A) 4 (B) 3 (C) 5 (D) 6 (SOF NSO 2020)

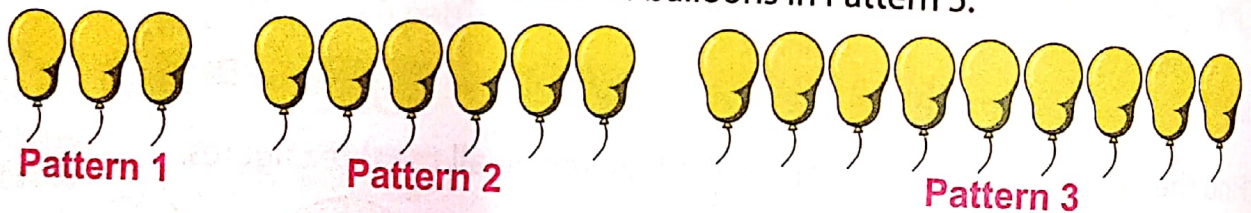
30. Which of the following figures will complete the given figure pattern?



- (A)  (B)  (C)  (D) Can't say

(SOF NSO 2020)

31. Study the given pattern and tell the number of balloons in Pattern 5.



- (A) 12 (B) 15 (C) 10 (D) 16 (SOF IMO 2020)

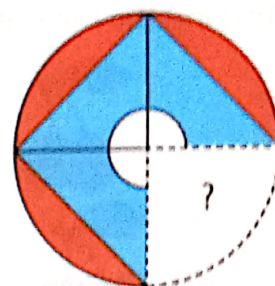
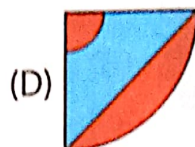
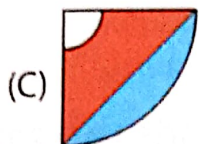
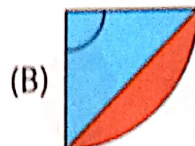
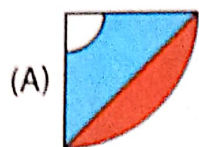
32. Which of the following figures will complete the given figure pattern?



- (A)  (B)  (C)  (D) 

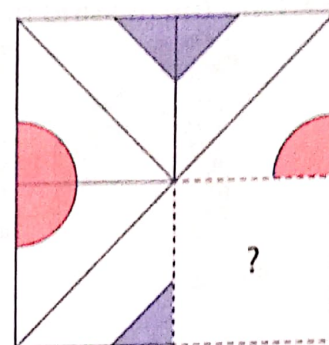
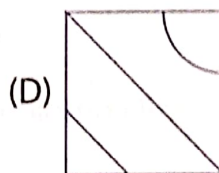
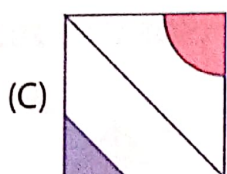
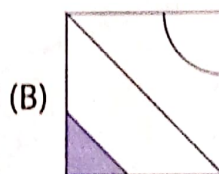
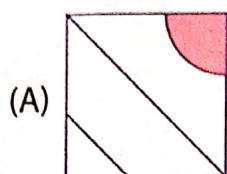
(SOF IMO 2020)

33. Which of the following options will complete the given figure pattern?



(SOF IMO 2020)

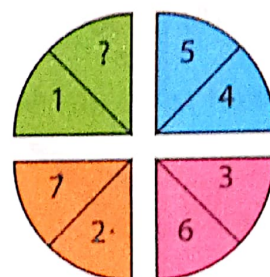
34. Which of the following figures will complete the given figure pattern?



(SOF NCO 2021)

35. Find the missing number.

- (A) 7
(B) 8
(C) 5
(D) 10



(SOF NSO 2021)

36. Study the given patterns carefully and tell the number of candles in Pattern 6.



Pattern 1



Pattern 2



Pattern 3

- (A) 10 (B) 15 (C) 18 (D) 12 (SOF NSO 2021)

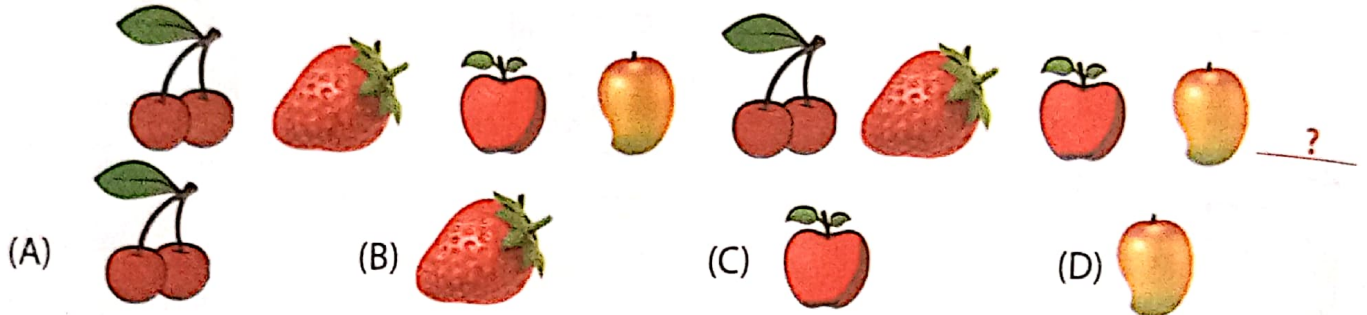
37. Find the missing number, if a certain rule is followed either row-wise or column-wise.

- (A) 10
(B) 12
(C) 18
(D) 15

17	5	22
20	?	30
15	11	26

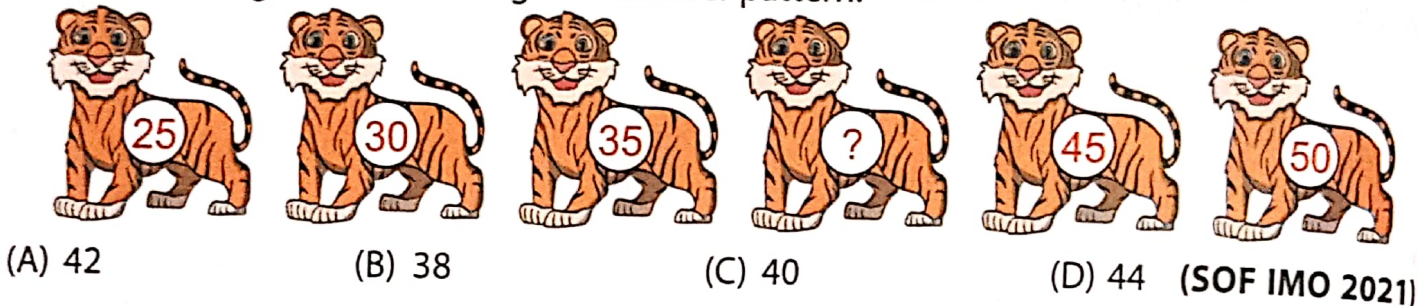
(SOF IMO 2021)

38. Find the missing figure to complete the given figure pattern.



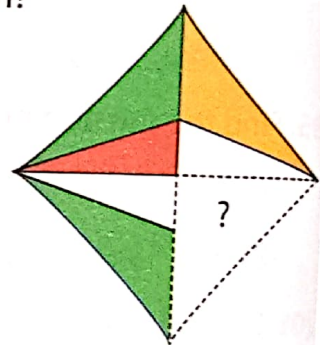
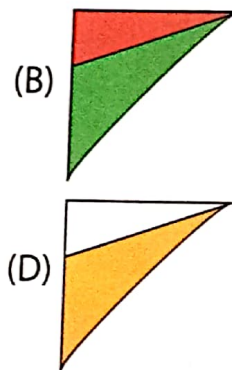
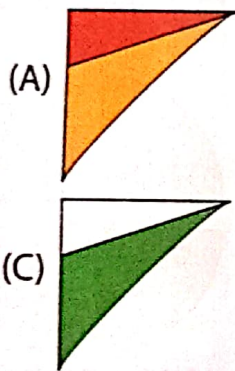
(SOF IMO 2021)

39. Find the missing number in the given number pattern.



(SOF IMO 2021)

40. Which of the following options will complete the given figure pattern?



(SOF IMO 2021)

Answer Key

1. (D)	2. (C)	3. (B)	4. (A)	5. (A)	6. (B)	7. (A)
8. (C)	9. (D)	10. (B)	11. (A)	12. (D)	13. (C)	14. (C)
15. (B)	16. (B)	17. (A)	18. (A)	19. (D)	20. (B)	21. (A)
22. (C)	23. (C)	24. (B)	25. (C)	26. (A)	27. (B)	28. (C)
29. (A)	30. (C)	31. (B)	32. (A)	33. (A)	34. (C)	35. (B)
36. (D)	37. (A)	38. (A)	39. (C)	40. (A)		

Measuring Units

Lengths

How to compare the lengths of given objects?

- If objects are straight, then measure them by ruler or tape.
- If objects are curved, then the object having the maximum curves is the longest and object having the minimum curves is the shortest.

Weights

How to compare the weights of given objects?

Use weighing scale to identify the weight of objects and categorise them from the lightest to the heaviest or the heaviest to the lightest.

Money

1 Rupee = 100 paise

Time

Number of days in a week = 7

Number of months in a year = 12

1 hour = 60 minutes

1 minute = 60 seconds

Example : 1

Jimmy has some coins, as shown below. How much total amount he has ?



(A) ₹ 21

(B) ₹ 30

(C) ₹ 23

(D) ₹ 25

Explanation (A) : Number of ₹ 5 coin = 1 i.e., ₹ 5

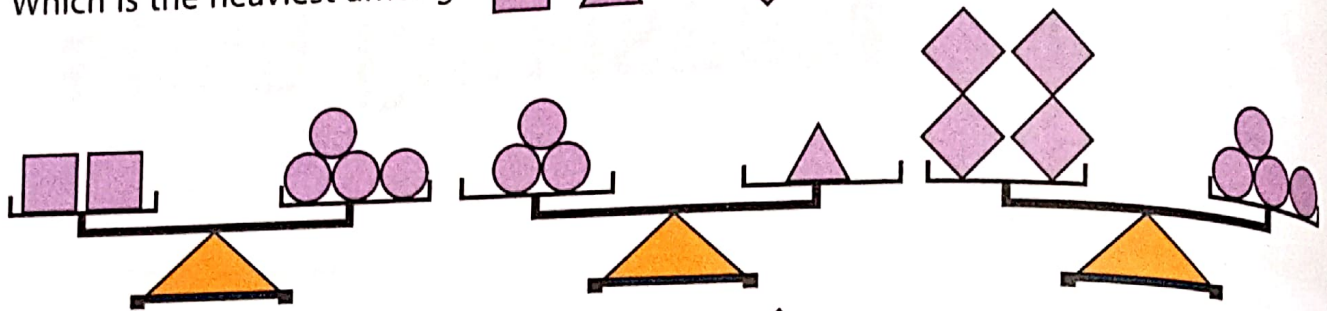
Number of ₹ 2 coins = 4 i.e., $(2 + 2 + 2 + 2) = ₹ 8$

Number of ₹ 1 coins = 8 i.e., ₹ 8

Total value = ₹ 5 + ₹ 8 + ₹ 8 = ₹ 21.

Example : 2

Which is the heaviest amongst ,  and ?

(A) (B) (C) 

(D) None of these

Explanation (B) :  =  ,  =   ,  = , so  is the heaviest.

Example : 3

If tomorrow will be Sunday, then yesterday was _____.

(A) Saturday

(B) Wednesday

(C) Friday

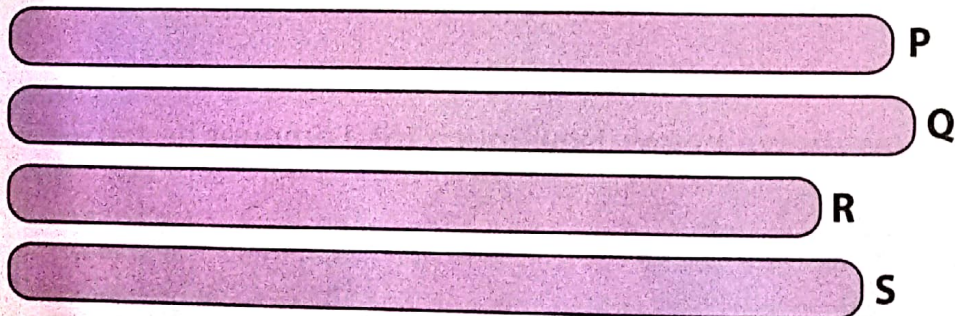
(D) Monday

Explanation (C) : Tomorrow will be Sunday means today is Saturday.

Then, yesterday was Friday.

EXERCISE

1. Which is the longest stick?



(A) S

(B) P

(C) R

(D) Q

2. How much is the amount shown here?



(A) ₹ 21

(B) ₹ 33

(C) ₹ 39

(D) ₹ 84

3. Which toy costs the most?



₹ 18.00



₹ 19.00



₹ 16.00



₹ 15.00

(A) P

(B) Q

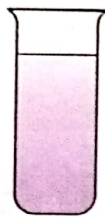
(C) R

(D) S

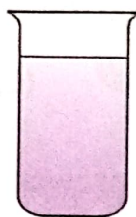
4. Beaker _____ contains the most amount of water.



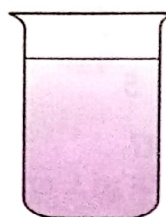
Beaker P



Beaker Q



Beaker R



Beaker S

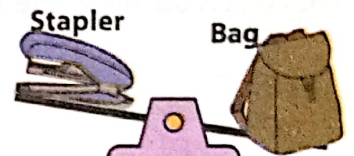
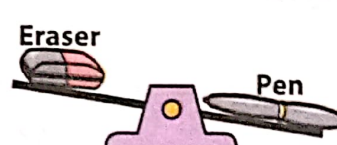
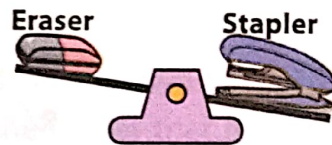
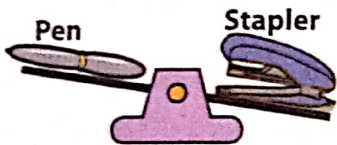
(A) Q

(B) R

(C) P

(D) S

5. Which item is the heaviest?



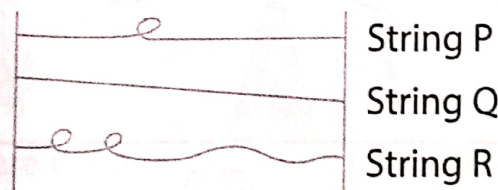
(A) Pen

(B) Eraser

(C) Stapler

(D) Bag

6. String _____ is the shortest and string _____ is the longest.



String P

String Q

String R

(A) Q, P

(B) Q, R

(C) P, R

(D) R, Q

7.



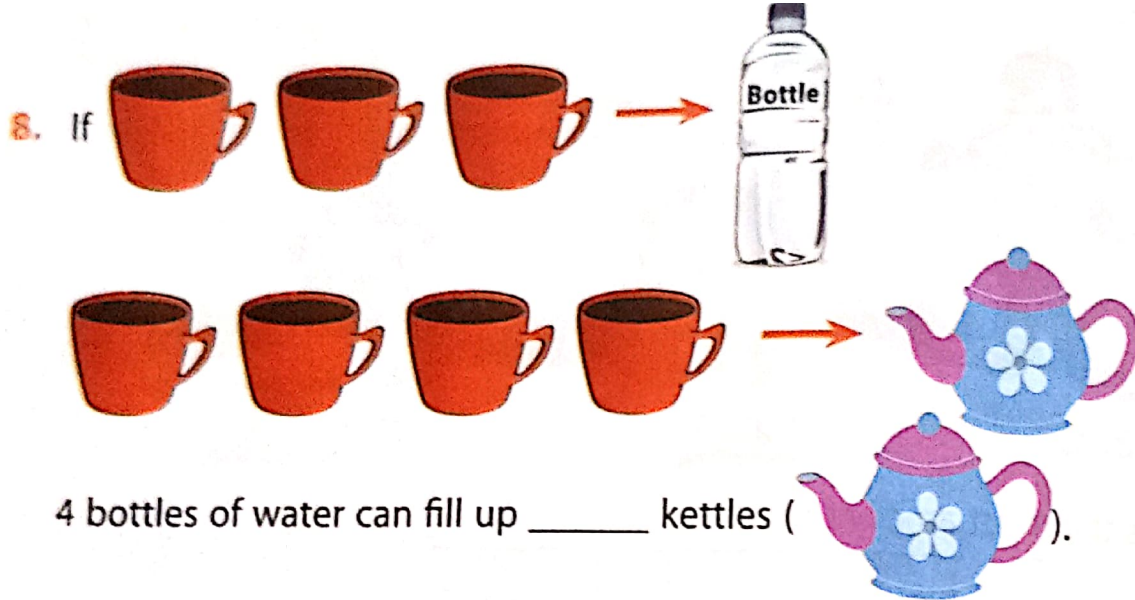
_____ kettles () of water will fill up 5 such pails.

(A) 20

(B) 25

(C) 15

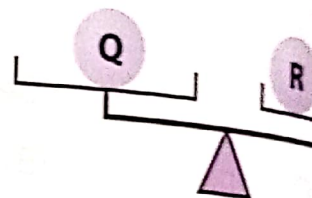
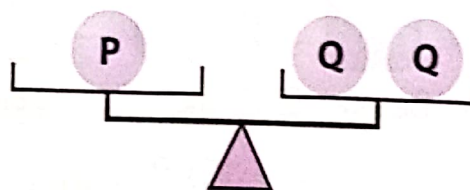
(D) 22



- (A) 4 (B) 5 (C) 3 (D) 2

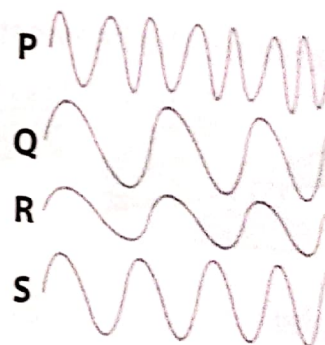
9. Which ball is the heaviest?

- (A) P
(B) Q
(C) R
(D) Can't be determined



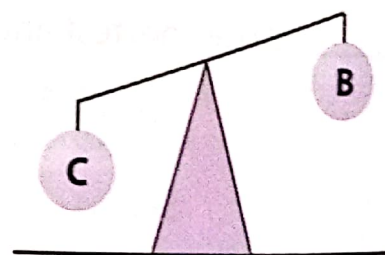
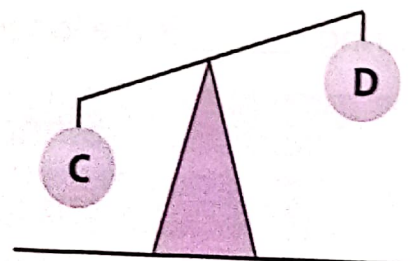
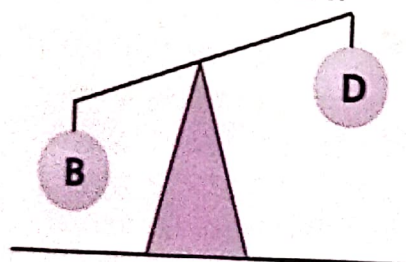
10. Which string is the longest?

- (A) R
(B) Q
(C) S
(D) P



11. Which ball is the heaviest?

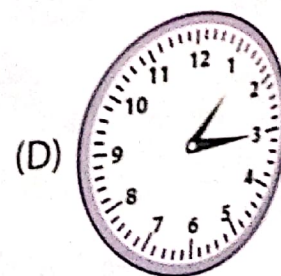
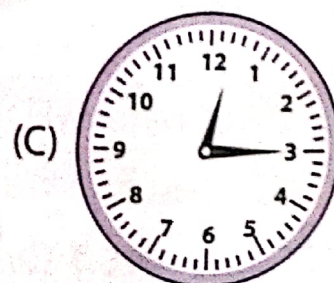
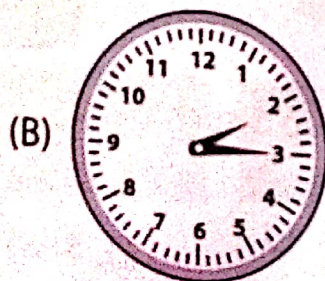
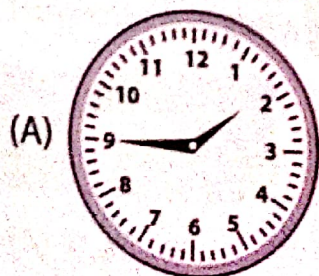
- (A) D
(B) B
(C) C
(D) Can't be determined



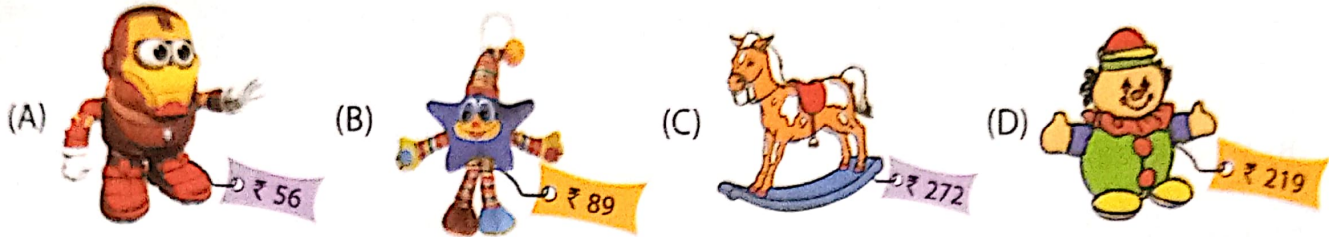
12. How many minutes are there in 2 hours?

- (A) 60 (B) 40 (C) 50 (D) 120

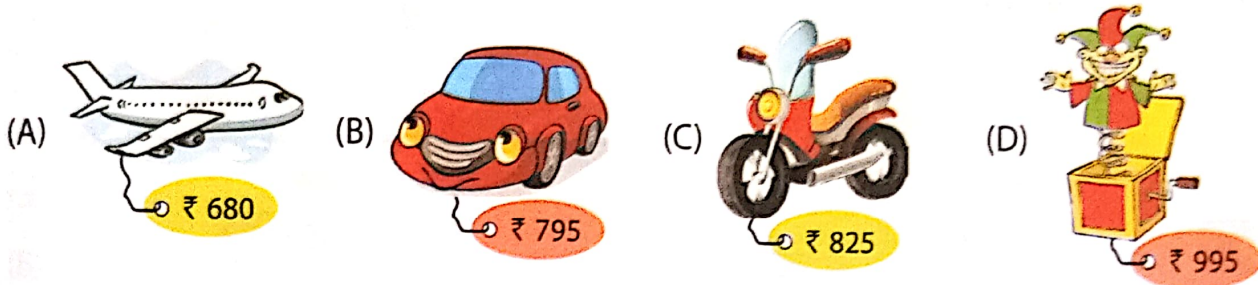
13. Which clock shows the time "half an hour after 1 : 45 p.m."?



14. Which toy costs the most?



15. Which toy costs the least?

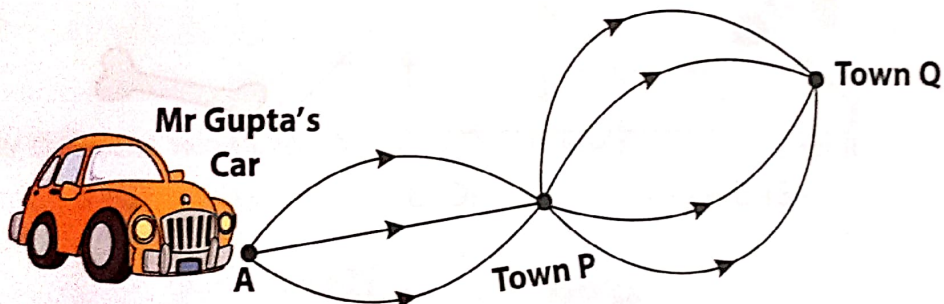


16. Hour hand of a clock is _____, if clock shows the time 2 hr 45 mins.

- (A) Near to 2
- (B) Near to 3
- (C) Between 1 and 2
- (D) Between 3 and 4



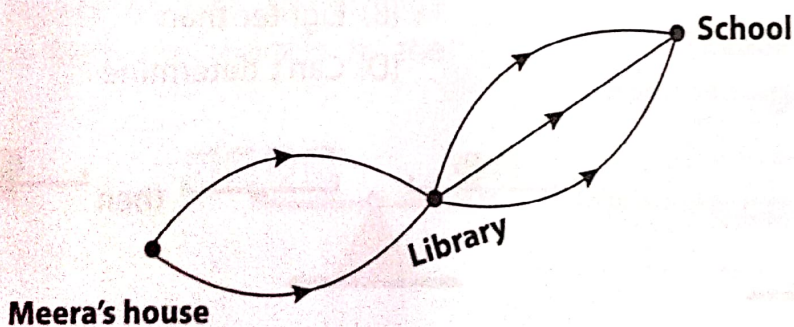
17. Mr Gupta needs to drive to Town Q via Town P by his car at A for a business meeting. The figure below shows the routes that he can take.



How many different ways are there for Mr Gupta to go to Town Q?

- (A) 10 (B) 3 (C) 8 (D) 12

18. How many different ways are there for Meera to go to the school, if she is at her home?



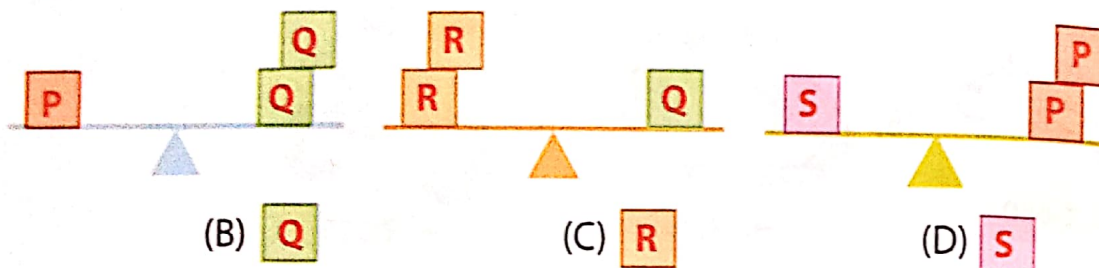
- (A) 3 (B) 6 (C) 5 (D) 7

19. Payal celebrated her birthday on 13th September 20XX. Maira's birthday falls on the fourth day after Payal's birthday. On which day will Maira celebrate her birthday?



- (A) Sunday
- (B) Wednesday
- (C) Thursday
- (D) Saturday

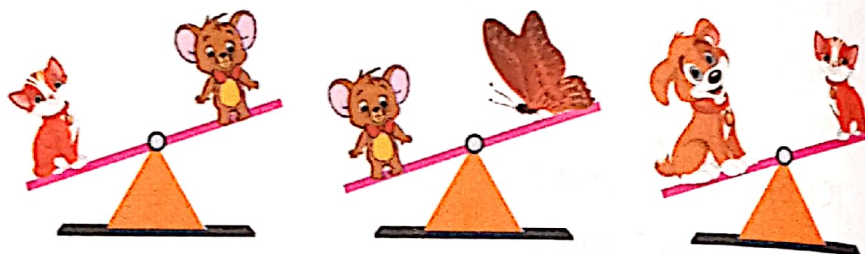
20. Select the lightest box.



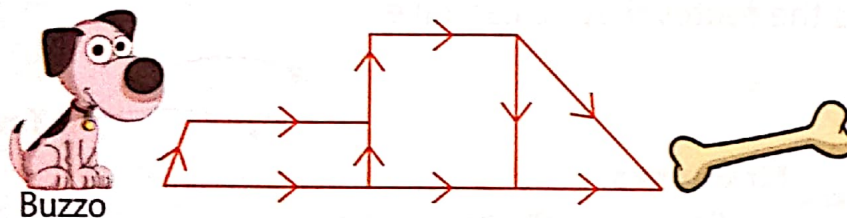
- (A) P
- (B) Q
- (C) R
- (D) S

21. Select the correct option.

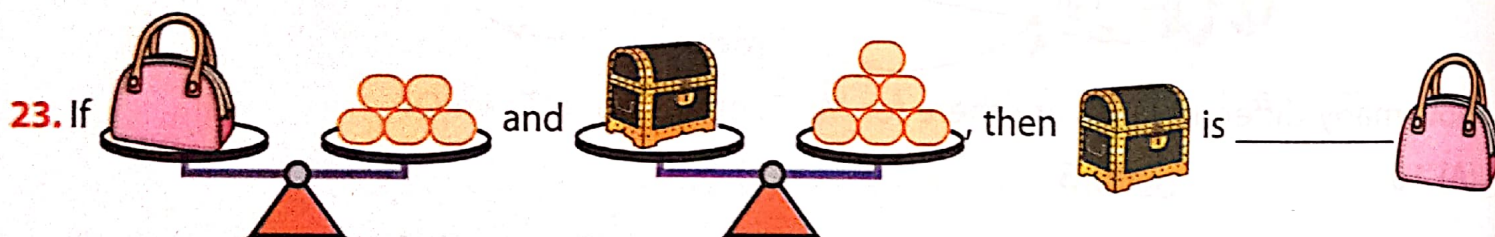
- (A) Cat is heaviest amongst all.
- (B) Butterfly is heavier than rat.
- (C) Rat is heavier than cat only.
- (D) Dog is heavier than rat.



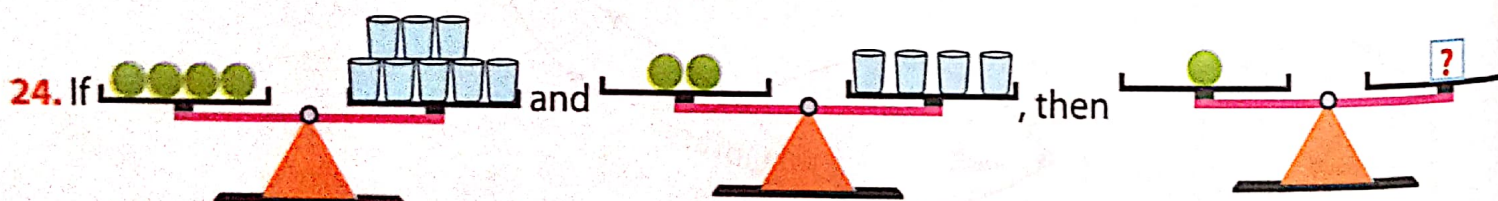
22. In how many different ways can Buzzo reach to the bone?



- (A) 4
- (B) 5
- (C) 3
- (D) 6



- (A) Heavier than
- (B) Lighter than
- (C) Equal to
- (D) Can't determine



- (A) 1 cup
- (B) 3 cups
- (C) 2 cups
- (D) 4 cups

ER 2011



ER 2011

- ER 2011



ER 2011

- ER 2011

ER 2011

ER 2011

- ER 2011



ER 2011

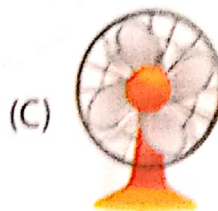
- ER 2011



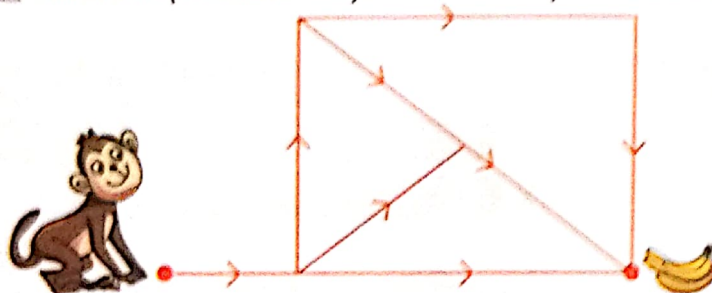
30. If yesterday was Wednesday, then day after tomorrow will be _____

- (A) Friday (B) Tuesday (C) Monday (D) Saturday

31. Which of the following is the lightest?



32. There are _____ different possible ways for monkey to reach bananas.



- (A) 3 (B) 4 (C) 5 (D) 6 (SOF NSO 2020)

33. Sneha's karate classes will start on the next day of third Friday of April 20XX. On which date will her classes start?

- (A) 18th April
(B) 19th April
(C) 20th April
(D) 13th April

APRIL 20XX						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

(SOF NSO 2020)

34. If Sneha's skating competition is on second Thursday of October 20XX, then on which date will be her competition held?

- (A) 10th October
(B) 9th October
(C) 8th October
(D) 18th October

OCTOBER 20XX						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

(SOF IMO 2020)

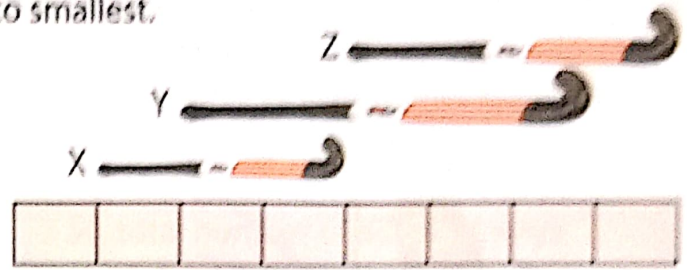
35. Which of the following is the lightest?



(SOF IMO 2020)

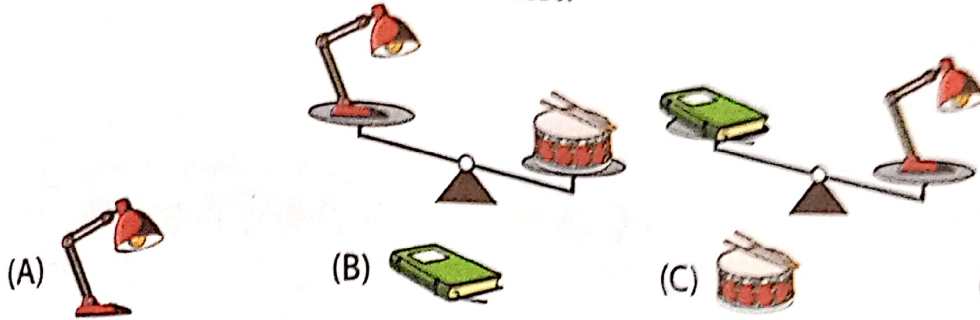
36. Arrange the given hockey sticks from largest to smallest.

- (A) Y, X, Z
(B) X, Y, Z
(C) Y, Z, X
(D) X, Z, Y



(SOF IMO 2020)

37. Which of the following is the heaviest?



(D) Can't be determined
(SOF NCO 2021)

38. Which of the following items costs the least?



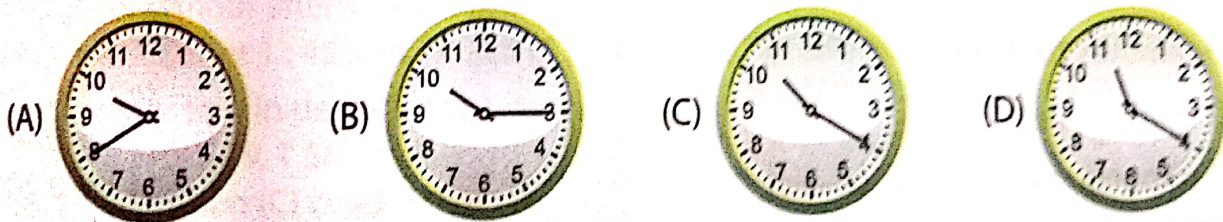
(SOF NCO 2021)

39. If day before yesterday was Wednesday, then tomorrow will be _____.

- (A) Sunday (B) Friday (C) Monday (D) Saturday

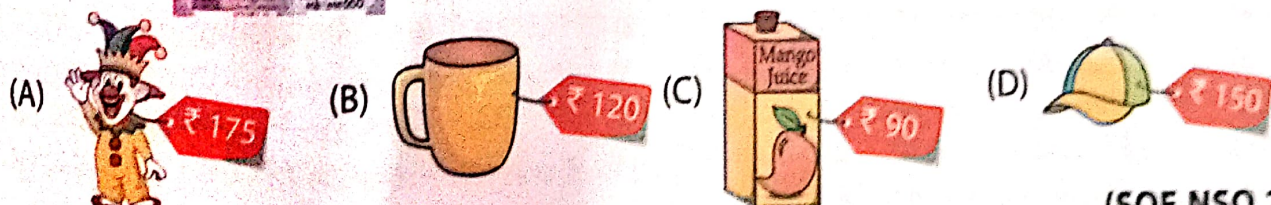
(SOF NCO 2021)

40. Which clock shows the time "20 minutes past 10"?



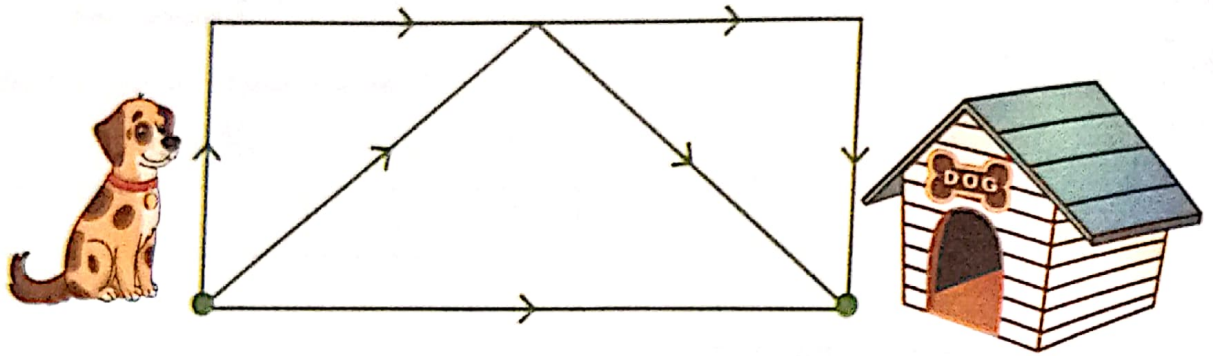
(SOF NSO 2021)

41. Sameer has . Which of the following items can he buy?



(SOF NSO 2021)

42. In how many different ways the dog can reach the dog house?



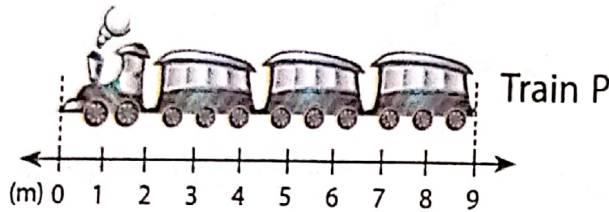
(A) 4

(B) 6

(C) 5

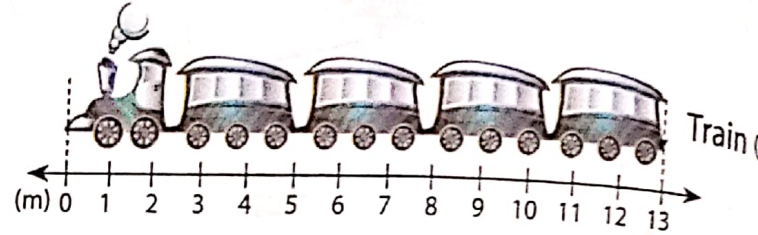
(D) 3 (SOF IMO 2021)

43. Train P is _____ m shorter than Train Q.



(A) 9

(B) 4



(C) 5

(D) 13 (SOF IMO 2021)

44. Which of the following items can be bought from the given amount of money?



(SOF IMO 2021)

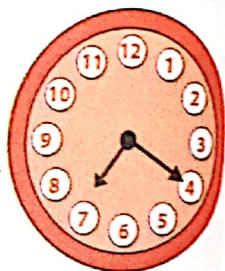
45. Which of the following options shows the time in the given clock?

(A) 20 minutes to 8

(B) 20 minutes to 7

(C) 20 minutes past 7

(D) 20 minutes past 8



(SOF IMO 2021)

Answer Key

1. (D)	2. (C)	3. (B)	4. (D)	5. (D)	6. (B)	7. (A)
8. (C)	9. (A)	10. (D)	11. (C)	12. (D)	13. (B)	14. (C)
15. (A)	16. (B)	17. (D)	18. (B)	19. (B)	20. (C)	21. (D)
22. (B)	23. (A)	24. (C)	25. (A)	26. (B)	27. (B)	28. (B)
29. (D)	30. (D)	31. (D)	32. (B)	33. (C)	34. (B)	35. (D)
36. (C)	37. (C)	38. (C)	39. (D)	40. (C)	41. (C)	42. (C)
43. (B)	44. (D)	45. (C)				