# Worksheet 5.1

**Marks - 25**

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Case study based questions

10th Maths

# Arithmetic Progressions

**Passage - 1** **5 Marks**


During the summers of 2003, Manisha thought of starting some business of her own and lent some money from her father and started a TV manufacturing company. After some years, she was known as one of the leading manufacturers in her area and kept expanding her limit year by year. Assuming that the production increases uniformly year by year, the number of tv sets produced by her in the third year was 600 units and in the seventh year it was 700.

Q 1. What was the gradual increase in manufacture per year?

(1) 20 units
(2) 25 units
(3) 30 units
(4) 45 units

Q 2. What was the production in first year?

(1) 550 units
(2) 555 units
(3) 560 units

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(4) 545 units

Q 3. What was the production in the tenth year?

(1) 770 units
(2) 775 units
(3) 780 units
(4) 785 units

Q 4. What is the total production till seven years?

(1) 4365 units
(2) 4370 units
(3) 4375 units
(4) 4380 units

Q 5. What is the difference between the production in fourth year and tenth year?

(1) 150 units
(2) 180 units
(3) 170 units
(4) 185 units

**Passage - 2** **5 Marks**

# Worksheet 5.1

**Marks - 25**

Siya being a plant lover came up with an idea of opening a nursery during the lockdown and she bought a few plants with pots. She wants to place pots in such a way that number of pots in row one is 3, pots in row second is 5 and in third is 7 and so on.

Q 1. What is the difference in number of pots increasing per row?

(1) 2
(2) 1
(3) 3
(4) 4

Q 2. What will be the number of pots in row 5?

(1) 9
(2) 11
(3) 13
(4) 15

Q 3. If Siya wants to place 120 pots, how many rows will it require?

(1) 8 rows

(2) 9 rows
(3) 10 rows
(4) 11 rows

Q 4. How many pots were placed in the 10th row?

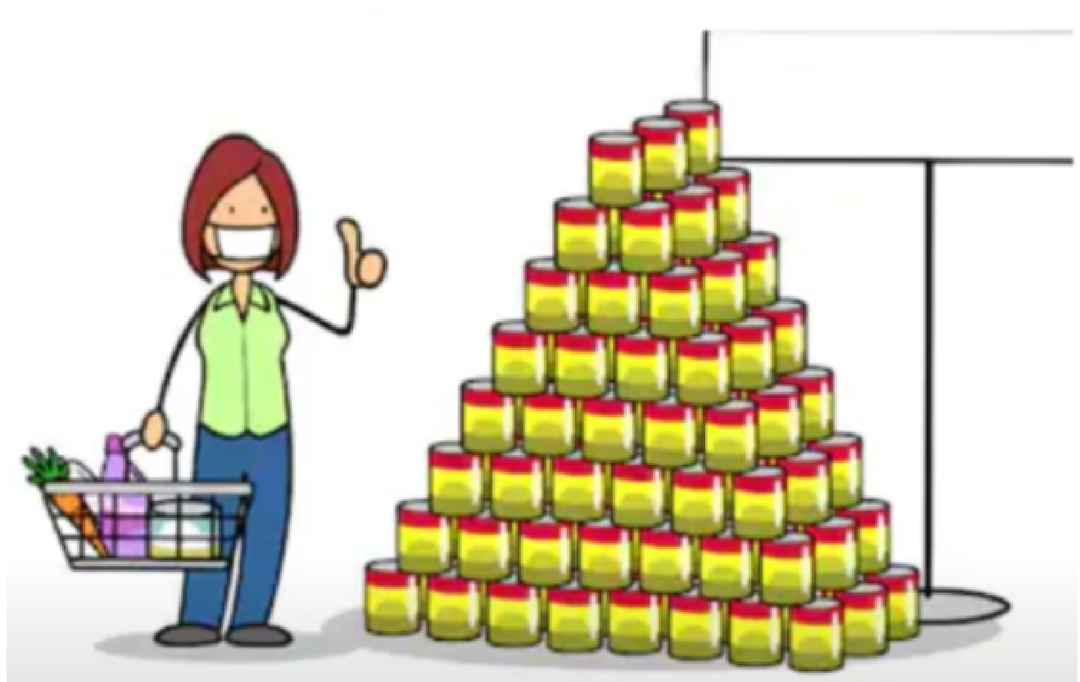
(1) 19 pots
(2) 17 pots
(3) 21 pots
(4) 23 pots

Q 5. Find the difference in number of pots placed in third and eighth row.

(1) 9 pots
(2) 10 pots
(3) 11 pots
(4) 12 pots

## Passage - 3

5 Marks



Ms. Riya goes to a grocery shop for purchasing some glass jars for gifting in a party. She observed the jars are arranged one above the other in a specific pattern:- 3, 6, 9..... . Answer the following questions.

# Worksheet 5.1

**Marks - 25**

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Q 1. How many total jars are there?

(1) 108
(2) 100
(3) 106
(4) 103

Q 2. What is the difference of jars in each row?

(1) 2
(2) 3
(3) 4
(4) 5

Q 3. What is the difference of jars in row 5 and row 7?

(1) 3
(2) 4
(3) 6
(4) 5

Q 4. If there are 100 such rows, then how much jars will be there in 56th row?

(1) 168
(2) 170
(3) 200
(4) 182

Q 5. What is the total number of jars till row 10?

(1) 162
(2) 165
(3) 168

# Worksheet 5.1

## Marks - 25

(4) 172

## Passage - 4

## 5 Marks

| WEEK | Saving by Gauri | Savings by Sheetal |
|---|---|---|
| Week 1 | Rs. 10 | Rs. 10 |
| Week 2 | Rs. 12 | Rs. 13 |
| Week 3 | Rs. 14 | Rs. 16 |
| . | . | . |
| . | . | . |
| Week 15 | So on | So on |

During the covid period, everyone started using his/her savings. Gauri and Sheetal also used her savings which they both saved in past few years. here is the saving pattern of both of the girls for last 15 weeks. Gauri saved in a pattern of Rs. 10 in first week, Rs. 12 in second week, Rs. 14 in third week and so on while Sheetal saved Rs. 10 in first week, Rs. 13 in second week, Rs. 16 in third week and so on.

Q 1. What is the amount saved by Gauri after 15 weeks?

(1) Rs 360
(2) Rs. 300
(3) Rs. 320
(4) Rs. 330

Q 2. What is the amount saved by Sheetal after 15 weeks?

(1) Rs. 480
(2) Rs. 465
(3) Rs. 400
(4) Rs. 470

Q 3. What is the difference in total saving of Gauri and Sheetal 5th week?

(1) Rs. 10
(2) Rs. 12
(3) Rs. 20

(4) Rs. 8

Q 4. What is the difference in saving of Gauri and Sheetal at the end of 15 weeks?

(1) Rs. 165
(2) Rs. 105
(3) Rs. 125
(4) Rs. 167

Q 5. Who saved more?

(1) Gauri
(2) Sheetal

**Passage - 5** **5 Marks**

Ravish was wishing to buy a new car but he didnt had enough of money. One of his friend suggested him to take a loan from XYZ bank. Influenced by his idea, he decides to take a loan of Rs. 1,18,000 and decides to repay by Rs. 1000 per month. On a further note, he decides to increase the installment by Rs. 100 every month. Answer the following questions.

# Worksheet 5.1

**Marks - 25**

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Q 1. What is the amount paid by him in 30th installment?

(1) Rs. 3900
(2) Rs. 3800
(3) Rs. 3700
(4) Rs. 3600

Q 2. What is the total amount paid by him in 30 installments?

(1) Rs. 74000
(2) Rs. 75000
(3) Rs. 73000
(4) Rs. 73500

Q 3. What amount is left after 30th installment?

(1) Rs. 44500
(2) Rs. 45000
(3) Rs. 45500
(4) Rs. 40000

Q 4. If the total number of installments is 40, what is the amount paid in the last installment?

(1) Rs. 4900
(2) Rs. 4800
(3) Rs. 4300
(4) Rs. 4500

Q 5. What is the ratio of first and last installment?

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# Worksheet 5.1

**Marks - 25**

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(1) 1 : 49
(2) 10 :49
(3) 49 : 1
(4) 49 : 10

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# Worksheet 5.2

**Marks - 25**

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Case study based questions

10th Maths

# Arithmetic Progressions

**Passage - 1** **5 Marks**

In a school, students decided to plant trees in and around the school to reduce air pollution. It was decided that the number of trees, that each section of each class will plant, will be double of the class in which they are studying. If there are 1 to 12 classes in the school and each class has two sections. Answer the following questions using the given information.

Q 1. State the arithmatic progression formed in the case that whole class is counted as one.

(1) 3, 5, 7 and so on
(2) 4, 8, 12 and so on
(3) 1, 2, 3 and so on
(4) None of the above

Q 2. State the diffference of trees between each class?

(1) 1 tree

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(2) 2 trees
(3) 3 trees
(4) 4 trees

Q 3. State the number of trees planted by class 12

(1) 44 trees
(2) 46 trees
(3) 48 trees
(4) 50 trees

Q 4. State the class which planted 40 trees.

(1) Class 9
(2) Class 10
(3) Class 11
(4) Class 8

Q 5. What is the total number of trees planted by the class?

(1) 308 trees
(2) 316 trees
(3) 312 trees
(4) 320 trees

**Passage - 2** **5 Marks**

# Worksheet 5.2

**Marks - 25**

Ramit was given a bag by his teacher and was asked to check what was there in the bag. After some time, he observed that the bag contained slips on which all the three-digit numbers were written. His teacher asked him to calculate some numbers on the basis of the slips in that bag.

Q 1. How many 3-digit numbers are divisible by 7?

(1) 126
(2) 128
(3) 127
(4) 125

# Worksheet 5.2

**Marks - 25**

Q 2. How many 3-digit numbers are divisible by 9?

(1) 104
(2) 103
(3) 102
(4) 100

Q 3. How many 3-digit numbers are divisible by 11?

(1) 80
(2) 81
(3) 82
(4) 83

Q 4. How many 3-digit numbers are there in all?

(1) 999
(2) 1000
(3) 980
(4) 900

Q 5. What is the sum of all the 3-digit numbers?

(1) 436550
(2) 437550
(3) 538550
(4) 494,550

**Passage - 3** **5 Marks**

# Worksheet 5.2

**Marks - 25**

Aman got his name registered for a sprint race. The race is scheduled for a month later than the time he registered for the race. He started practicing for the race. His courrent run time is 51 sec for the distance to be covered in the race. He wants to reduce his time to 31 seconds. Answer the following questions

Q 1. What would be a suitable A.P. for the above situation?

(1) 51, 53, 55 and so on
(2) 51, 49, 47 and so on
(3) -51, -53, -55 and so on
(4) None of these

Q 2. Would he be able to achieve his target in one month?

(1) YES
(2) NO

Q 3. If Aman is able to achieve his target, then in how many days will he able to achieve it?

(1) 10 days
(2) 11 days
(3) 12 dyas
(4) 13 days

# Worksheet 5.2

**Marks - 25**

Q 4. Which of the following is not a term of this A.P.?

(1) 30
(2) 41
(3) 37
(4) 39

Q 5. If the
$n^{th}$
term of the A.P. is given by
$a_n$
=2n+3, then what is the common difference of the A.P.?

(1) 2
(2) 3
(3) 5
(4) 1

## Passage - 4

**5 Marks**

Raj's mother gave him a packet of toffees and candies. The packet he had was having 120 toffees and candies. He started arranging toffees and candies in such a way that there were 3 in row 1, 5 in row 2, 7 in row 3 and so on. Answer the following questions using the above passage

# Worksheet 5.2

**Marks - 25**

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Q 1. What is the total number of rows formed by the number of candies he had?

(1) 12 rows
(2) 10 rows
(3) 8 rows
(4) 14 rows

Q 2. How many candies are there in the last row?

(1) 21 candies
(2) 23 candies
(3) 19 candies
(4) 17 candies

Q 3. How many candies would Raj require more, if he wishes to add two more rows to his pattern?

(1) 46 candies
(2) 48 candies
(3) 50 candies
(4) 44 candies

Q 4. What is the difference of the candies between row 4th and row 8th?

(1) 9 candies
(2) 7 candies
(3) 6 candies
(4) 8 candies

Q 5. If Raj eats 4 toffees, would it change the pattern he formed?

(1) YES

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# Worksheet 5.2

**Marks - 25**

(2) NO

## Passage - 5

**5 Marks**

There are 25 trees at equal distance of 5m from the wall planted by a gardener in the school premises. All the trees are planted in the line of the wall. The distance of the wall from the nearest tree is 10 m.The gardener starts watering all the trees from the tree nearest to the wall to the farthest one and comes. He waters each tree and comes back to the tap and refills his bucket and waters the next. Answer the following questions using the given passage.

Q 1. State the A.P. formed in terms of the distance covered by the gardener each time he waters the tree.

(1) 5, 10, 15 and so on
(2) 10, 20, 30 and so on
(3) 10, 15, 20 and so on
(4) 20, 30, 40 and so on

Q 2. State the A.P. formed in terms of the distance of the trees from the wall.

(1) 5, 10, 15 and so on
(2) 10, 20, 30 and so on
(3) 10, 15, 20 and so on
(4) 20, 30, 40 and so on

Q 3. How much distance the garner needs to travel to water the 15th tree?

(1) 160 m

(2) 170 m
(3) 180 m
(4) 190 m

Q 4. What is the total distance required to be covered in order for watering the sixth tree?

(1) 230 m
(2) 240 m
(3) 250 m
(4) 270 m

Q 5. What is the total distance covered by the gardener?

(1) 3400 m
(2) 3500 m
(3) 3600 m
(4) 3700 m