RS Aggarwal Solutions for Class 10 Maths Chapter 11 Exercise 11.2: RS Aggarwal Solutions for Class 10 Maths Chapter 11 Exercise 11.2 focus on the topic of Arithmetic Progressions (AP). In this exercise, students are introduced to problems involving finding specific terms of an AP sequence using the formula for the nth term.

They learn to identify the first term (a) and the common difference (d) of the AP sequence and apply the formula to calculate any desired term.

The solutions provide step-by-step explanations and calculations, helping students grasp the concept of AP and strengthen their problem-solving skills in arithmetic progression.

RS Aggarwal Solutions for Class 10 Maths Chapter 11 Exercise 11.2 Overview

RS Aggarwal Solutions for Class 10 Maths Chapter 11 Exercise 11.2 are prepared by experts at Physics Wallah. This chapter is all about Arithmetic Progressions (AP).

The solutions explain clearly how to use the formula to find any term in the sequence, starting from the first term and the difference between consecutive terms. These solutions are designed to help students understand AP better and solve related problems with ease.

RS Aggarwal Solutions for Class 10 Maths Chapter 11 Exercise 11.2 PDF

You can find the PDF link for RS Aggarwal Solutions for Class 10 Maths Chapter 11 Exercise 11.2 below. This PDF gives clear answers to problems about Arithmetic Progressions (AP).

It helps students learn how to find specific terms in a sequence where each term increases by the same amount. The solutions show step-by-step how to use a formula to figure out any term in the sequence using the first term and the difference between terms.

RS Aggarwal Solutions for Class 10 Maths Chapter 11 Exercise 11.2 PDF

RS Aggarwal Solutions for Class 10 Maths Chapter 11 Arithmetic Progressions Exercise 11.2

Here we have provided RS Aggarwal Solutions for Class 10 Maths Chapter 11 Arithmetic Progressions Exercise 11.2 for the ease of students so that they can prepare better for their exams.

Q. Determine k so that (3k -2), (4k-6) and (k +2) are three consecutive terms of an AP.

Solution:

It is given that (3k -2), (4k – 6) and (k + 2) are three consecutive terms of an A.P.

Therefore,
$(4k–6)–(3k−2)=(k+2)–(4k–6)$
$4k–6–3k+2=k+2–4k+6$
$\Rightarrow k–4=−3k+8$
$\Rightarrow k+3k=4+8$
$\Rightarrow 4k=12$
$\Rightarrow k=3$

Hence the value of k is 3.

Q. Find the value of x for which the numbers (5x+2), (4x-1) and (x + 2) are in AP.

Solution:

If the terms are in AP, we know that 2B = A+C.

A = (5x+2)

B = (4x-1)

C = (x + 2)

2B = A + C

=> 2(4x - 1) = 5x + 2 + x + 2

=> 8x - 2 = 6x + 4

=> 8x - 6x = 4 + 2

=> 2x = 6

=> x = 3

Q. IF (3y-1), (3y + 5) and (5y + 1) are three consecutive terms of an AP then find the value of y.

Solution:

AP : $3y−1, 3y+5, 5y+1$.

As per the question , we have

First term, $a=3y-1$----(1)

Second term , $a2=3y+5$

$a+d=3y+5$----(2)

Third term,$a3=5y+1$

$a+2d=5y+1$ -----(3)

Now, subtracting equation (2) from equation(3), we have

$d=2y-4$----(4)

Similarly, subtracting equation (1) from equation(3) , we get

$2d=2y+2$

$d=y+1$(Multiplying the whole equation by 12) -----(5)

Solving equation(4) and (5) , we obtain

$2y-4=y+1$

$2y-y=1+4$

$y=5$

Thus , y = 5

Q. Find the value of x for which (x +2), 2x, (2x+3) are three consecutive terms of an AP.

Solution:

Let us take an A.P of terms a, b, c
The arithmetic mean is b

Here,
$a=x+2$
$b=2x$
$c=2x+3$
On substituting the values in the formula we get :
$2x=x+2+2x+32$
$2x=3x+52$
$4x=3x+5$

$x=5$
Hence the value of x is 5

Q. Show that $(a-b)2$, $(a2+b2)$ and $(a+b)2$ are in AP.

Solution:

The given terms are $(a-b)2,(a2+b2)$ and $(a+b)2$.

$A = (a-b)2$

$B = (a2+b2)$

$C = (a+b)2$

If A, B and C are in A. P. then $2B = A + C$

Consider,

$(a-b)2+(a+b)2=(a2-2ab+b2)+(a2+2ab+b2)$

$=2a2+2b2$

$=2(a2+b2)$

Since $(a-b)2+(a+b)2=2(a2+b2)$,

$(a-b)2,(a2+b2)$ and $(a+b)2$ are in A.P.

Q. Find three numbers in AP whose sum is 15 and product is 80.

Solution:

let $a - d$, a , $a + d$ are three terms of an AP

according to the problem given;

sum of the terms = 15

$a - d + a + a + d = 15$

$3a = 15$

$a = 15 / 3$

$a = 5$

product = 80

$(a - d)\,a\,(a + d) = 80$

$(a^2 - d^2)\,a = 80$

$(5^2 - d^2)\,5 = 80$

$25 - d^2 = 80/5$

$25 - d^2 = 16$

$-d^2 = -9$

$d^2 = 3^2$

$d = \pm 3$

Therefore,

$a = 5$, $d = \pm 3$

required 3 terms are

$a - d = 5 - 3 = 2$

$a = 5$

$a + d = 5 + 3 = 8$

(2 , 5 , 8) or (8 , 5 , 2)

Q. The sum of three numbers in AP is 3 and their product is -35. find the numbers.

Solution:

Let $(x-d)$, x, $(x+d)$ be in AP
Then $x-d+x+x+d = 3$
$x = 1$
$(x-d)\,x(x+d) = -35$
$(1-d)1(1+d) = -35$
$1 - d.d = -35$

$d = 6$
$(1-6), 1, (1+6)$
$-5, 1, 7$

Q. Divide 24 in three parts such that they are in AP and their product is 440.

Solution:

Let the required terms of the given AP be a-d, a and a+d
Where the first term is a-d
The common difference = d
Given : The sum of the three parts = 24
$\therefore$ $(a-d)+(a)+(a+d) = 24$
$3a = 24$
$a = 8$
Given : The product of these three terms = 440
$\therefore$ $(a-d)\ (a)\ (a+d) = 440$
$(8-d)\ (8)\ (8+d) = 440$
$-8d^2 + 512 = 440$
$-8d^2 = 440 - 512$
$-8d^2 = -72$
$d^2 = 72/8$
$d^2 = 9$

d= □ 3
So the three required terms of AP is 8 - 3 = 5 ; 8 and 8 + 3 = 11
Three terms are 5, 8, 11 or 11,8,5

Q. The sum of three consecutive terms terms of an is 21 and the sum of the squares of these terms is 165. find these terms.

Solution:

Let three consecutive terms be a-d, a, a+d
where d is common difference

$a-d+a+a+d=21$
$3a=21$

$a=7$

$(a-d)^2+a^2+(a+d)^2=165$

$a^2-2ad+d^2+a^2+a^2+2ad+d^2=165$
$3a^2+2d^2=165$
$147+2d^2=165$
$2d^2=18$
$d^2=9$
$d=3$

$a-d=4$
$a+d=10$

the terms are 4,7,10

Q. The angles of a quadrilateral are in AP whose common difference is 10° find the angle.

Solution:

Since the angles are in A.P., let the angles are p, p+10, p+20, p+30
sum of angles=360
$\Rightarrow$ p + p+10 + p+20 + p+30 = 360
$\Rightarrow$ 4p + 60 = 360
$\Rightarrow$ 4p = 360-60 = 300
$\Rightarrow$ p = 300/4 = 75

So the angles are
p = 75
p+10 = 75+10 = 85
p+20 = 75+20 = 95
p+3

Q. Find four numbers in AP whose sum is 28 and the sum of whose squares is 216.

Solution:

Let the four numbers be $(a-3d),(a-d),(a+d)$ and $(a+3d)$.
Given:
1. Their sum is 28
$(a-3d)+(a-d)+(a+d)+(a+3d)=28$
$\Rightarrow 4a=28$
$\therefore a=7$.

2.Their sum of square 216
$(a-3d)2+(a-d)2+(a+d)2+(a+3d)2=216$
$\Rightarrow a2+9d2-6ad+a2+d2-2ad+a2+d2+2ad+a2+9d2+6ad=216$
$\Rightarrow 4a2+20d2=216$

$\Rightarrow a^2+5d^2=54$
Putting the value of a
$49+5d^2=54$
$5d^2=5$
$d^2=1$
$\therefore d=\pm1$.
For d=1:
The numbers are $7+3, 7+1, 7-1, 7-3 \Rightarrow 10, 8, 6, 4$.
For d=−1:
The numbers are $7+3, 7+1, 7-1, 7+3 \Rightarrow 4, 6, 8, 10$.

Q. Divide 32 into four parts which are the four terms of an AP such that the product of the first and the fourth terms is to the product of the second and the third terms as 7:15.

Solution:

In case of 4 terms, we usually take 2d as the common difference and the average of the two middle terms should be a.

Therefore, Let a-3d, a-d, a+d and a+3d be the 4 terms.

Now, By Question, we have

$(a-3d) + (a-d) + (a+d) + (a+3d) = 32$
$\Rightarrow 4a = 32$
$\Rightarrow a = 8$

Again, By Question, we have

$(a-3d)(a+3d) : (a-d)(a+d) = 7 : 15$
$\Rightarrow a^2-9d^2 : a^2-d^2 = 7 : 15$
$\Rightarrow 15(a^2-9d^2)=7(a^2-d^2)$
$\Rightarrow 15a^2-135d^2=7a^2-7d^2$
$\Rightarrow 15a^2-7a^2=135d^2-7d^2$
$\Rightarrow 8a^2=128d^2$
$\Rightarrow 8(8)^2=128d^2$ (Substituting the value of a)

$\Rightarrow 512=128d^2$
$\Rightarrow 4=d^2$
$\Rightarrow d=+2, -2$

Therefore Common Difference = 2d = (+)(-)4

Therefore, The required AP is -

a-3d = 8 - 3(2) = 2. Or. a-3d = 8-3(-2) = 14
a-d. = 8 - 2. = 6. Or. a-d. = 8-(-2) = 10
a+d. = 8+2. = 10. Or. a+d. = 8+(-2) = 6
a+3d = 8+3(2) = 14. Or. a+3d = 8+3(-2) = 2

Note: In one case the Common Difference is 4 where as in the 2nd case the Common Difference is -4.

Q. The sum of first three terms of an AP is 48. If the product of first and second terms exceeds 4 times the third term by 12. find the AP.

Solution:

let the first 3 terms of the A.P be a-d, a and a+d

by data, (a-d) + a + (a+d)= 48

3a=48

a=16

as per data: (a-d)a= 4(a+d)+12--(1)

substituting the value of 'a' in (1); (16-d)16=4(16+d) +12

256 - 16d = 64 + 4d + 12

256 - 16d =76 + 4d

256-76= 16d+4d

180 = 20d

d= 9

therefore the A.P is : 16, 25, 34...

Benefits of RS Aggarwal Solutions for Class 10 Maths Chapter 11 Exercise 11.2

- **Clear Explanations:** Provides easy-to-understand explanations of Arithmetic Progressions (AP) concepts.

- **Step-by-Step Guidance:** Guides students through solving problems with detailed step-by-step solutions.
- **Enhanced Understanding:** Helps students grasp how to find specific terms in AP sequences.
- **Practice Opportunities:** Offers ample practice questions to reinforce learning.
- **Improved Problem-Solving Skills:** Enhances students ability to solve AP-related problems confidently.
- **Exam Preparation:** Prepares students effectively for exams by covering essential AP topics.
- **Boosts Confidence:** Builds confidence in tackling AP questions in tests and assessments.
- **Comprehensive Coverage:** Covers all aspects of Chapter 11 Exercise 11.2, ensuring thorough understanding.