

## Squares and Square Roots Ex 3.3 Q4

## Answer:

Notice that all numbers except the one in question (vii) has 5 as their respective unit digits. We know that the square of a number with the form n5 is a number ending with 25 and has the number n(n + 1) before 25.

- (i) Here, n = 42
- n(n+1) = (42)(43) = 1806
- : 425<sup>2</sup> = 180625
- (ii) Here, n = 57
- n(n + 1) = (57)(58) = 3306
- $575^2 = 330625$
- (iii) Here n = 40
- n(n + 1) = (40)(41) = 1640
- : 405<sup>2</sup> = 164025
- (iv) Here n = 20
- n(n + 1) = (20)(21) = 420
- $205^2 = 42025$
- (v) Here n = 9
- n(n+1) = (9)(10) = 90
- $..95^2 = 9025$
- (vi) Here n = 74
- n(n+1) = (74)(75) = 5550
- : 745<sup>2</sup> = 555025

## (vii) We know:

The square of a three-digit number of the form  $5ab = (250 + ab)1000 + (ab)^2$ 

$$\therefore 512^2 = (250+12)1000 + (12)^2 = 262000 + 144 = 262144$$

- (viii) Here, n = 99
- n(n+1) = (99)(100) = 9900
- : 995<sup>2</sup> = 990025

Squares and Square Roots Ex 3.3 Q5

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Answer:
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(i) On decomposing:
405 = 400 + 5
Here, a = 400 and b = 5
Using the identity (a + b)^2 = a^2 + 2ab + b^2:
405^2 = (400 + 5)^2 = 400^2 + 2(400)(5) + 5^2 = 160000 + 4000 + 25 = 164025
(ii) On decomposing:
510 = 500 + 10
Here, a = 500 and b = 10
Using the identity (a + b)^2 = a^2 + 2ab + b^2:
510^2 = (500 + 10)^2 = 500^2 + 2(500)(10) + 10^2 = 250000 + 10000 + 100 = 260100
(iii) On decomposing:
1001 = 1000 + 1
Here, a = 1000 and b = 1
Using the identity (a + b)^2 = a^2 + 2ab + b^2:
1001^2 = (1000 + 1)^2 = 1000^2 + 2(1000)(1) + 1^2 = 1000000 + 2000 + 1 = 1002001
(iv) On decomposing:
209 = 200 + 9
Here, a = 200 and b = 9
Using the identity (a + b)^2 = a^2 + 2ab + b^2:
209^2 = (200 + 9)^2 = 200^2 + 2(200)(9) + 9^2 = 40000 + 3600 + 81 = 43681
(v) On decomposing:
605 = 600 + 5
Here, a = 600 and b = 5
Using the identity (a + b)^2 = a^2 + 2ab + b^2:
605^2 = (600 + 5)^2 = 600^2 + 2(600)(5) + 5^2 = 360000 + 6000 + 25 = 366025
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