Worksheet -1 Subject: - Mathematics Class: - VIII Teacher: - Ms. Neeru

Name: _____ Class & Sec: _____ Roll No. _____ Date: 21.07.2020

Squares and Square Roots (A)

Instructions: Find the square root or square of each integer.

$\sqrt{256} =$	$\sqrt{4} =$	$\sqrt{169} =$	$\sqrt{100} =$
$\sqrt{121} =$	$\sqrt{196} =$	$\sqrt{16} =$	$\sqrt{64} =$
$\sqrt{1} =$	$\sqrt{9} =$	$\sqrt{49} =$	$\sqrt{144} =$
$\sqrt{225} =$	$\sqrt{81} =$	$\sqrt{25} =$	$\sqrt{36} =$
$11^2 =$	$13^2 =$	$14^2 =$	$10^2 =$
$12^2 =$	$1^2 =$	$15^2 =$	$6^2 =$
$9^2 =$	$3^2 =$	$4^2 =$	$16^2 =$
$8^2 =$	$7^2 =$	$5^2 =$	$2^2 =$

Squares and Square Roots (A) Answers

Instructions: Find the square root or square of each integer.

$\sqrt{256} = 16$	$\sqrt{4} = 2$	$\sqrt{169} = 13$	$\sqrt{100} = 10$
$\sqrt{121} = 11$	$\sqrt{196} = 14$	$\sqrt{16} = 4$	$\sqrt{64} = 8$
$\sqrt{1} = 1$	$\sqrt{9} = 3$	$\sqrt{49} = 7$	$\sqrt{144} = 12$
$\sqrt{225} = 15$	$\sqrt{81} = 9$	$\sqrt{25} = 5$	$\sqrt{36} = 6$
$11^2 = 121$	$13^2 = 169$	$14^2 = 196$	$10^2 = 100$
$12^2 = 144$	$1^2 = 1$	$15^2 = 225$	$6^2 = 36$
$9^2 = 81$	$3^2 = 9$	$4^2 = 16$	$16^2 = 256$
$8^2 = 64$	$7^2 = 49$	$5^2 = 25$	$2^2 = 4$

- **Properties of Square number**:

  (i) A number ending in 2, 3, 7 or 8 is never a perfect square. Example: 152, 1028, 6593 etc.

  (ii) A number ending in 0, 1, 4, 5, 6 or 9 may not necessarily be a square number. Example: 20, 31, 24, etc.

  (iii) Square of even numbers are even. Example: $2^2 = 4$, $4^2=16$ etc.

  (iv) Square of odd numbers are odd. Example: $5^2 = 25$, $9^2 = 81$, etc.

  (v) A number ending in an odd number of zeroes cannot be a perferct square. Example: 10, 1000, 900000, etc.

$\sqrt{1} = 1$ since $1^2 = 1$

$\sqrt{4} = 2$ since $2^2 = 4$

$\sqrt{9} = 3$ since $3^2 = 9$

$\sqrt{16} = 4$ since $4^2 = 16$

$\sqrt{25} = 5$ since $5^2 = 25$

$\sqrt{36} = 6$ since $6^2 = 36$

$\sqrt{49} = 7$ since $7^2 = 49$

$\sqrt{64} = 8$ since $8^2 = 64$

$\sqrt{81} = 9$ since $9^2 = 81$

$\sqrt{100} = 10$ since $10^2 = 100$

Ex 6.2 Q2

2. **Write a Pythagorean triplet whose one member is.**
   - i. **6**
   - ii. **14**
   - iii. **16**
   - iv. **18**

Solution:

For any natural number m, we know that
$2m, m^2-1, m^2+1$ is a Pythagorean triplet.

i. $2m = 6$

$\Rightarrow m = \frac{6}{2} = 3$

$m^2-1 = 3^2 - 1 = 9-1 = 8$

$m^2+1 = 3^2+1 = 9+1 = 10$

$\therefore$ (6, 8, 10) is a Pythagorean triplet.

ii. $2m = 14$

$\Rightarrow m = \frac{14}{2} = 7$

$m^2-1 = 7^2-1 = 49-1 = 48$

$m^2+1 = 7^2+1 = 49+1 = 50$

$\therefore$ (14, 48, 50) is not a Pythagorean triplet.

iii. $2m = 16$

$\Rightarrow m = \frac{16}{2} = 8$

$m^2-1 = 8^2-1 = 64-1 = 63$

$m^2+1 = 8^2+1 = 64+1 = 65$

$\therefore$ (16, 63, 65) is a Pythagorean triplet.

iv. $2m = 18$

$\Rightarrow m = \frac{18}{2} = 9$

$m^2-1 = 9^2-1 = 81-1 = 80$

$m^2+1 = 9^2+1 = 81+1 = 82$

$\therefore$ (18, 80, 82) is a Pythagorean triplet.

Ex 6.3 Class 8 Maths Question 3.

Find the square roots of 100 and 169 hy the method of repeated subtraction.

Solution:

From 100, we subtract successive odd numbers starting from 1 as under:

$100 - 1 = 99$ $\quad 99 - 3 = 96$ $\quad 96 - 5 = 91$
$91 - 7 = 84$ $\quad 84 - 9 = 75$ $\quad 75 - 11 = 64$
$64 - 13 = 51$ $\quad 51 - 15 = 36$ $\quad 36 - 17 = 19$
$19 - 19 = 0$
And obtain 0 at 10th step.
$\therefore \sqrt{100} = 10$

From 169, we subtract successive odd numbers starting from 1 as under:

$169 - 1 = 168$ $\quad 168 - 3 = 165$ $\quad 165 - 5 = 160$
$160 - 7 = 153$ $\quad 153 - 9 = 144$ $\quad 144 - 11 = 133$
$133 - 13 = 120$ $\quad 120 - 15 = 105$ $\quad 105 - 17 = 88$
$88 - 19 = 69$ $\quad 69 - 21 = 48$ $\quad 48 - 23 = 25$
$25 - 25 = 0$
and obtain 0 at 13th step.
$\therefore \sqrt{169} = 13$

QUESTIONS

1. If the no. has unit's digit -, - ,-, -, -, - then it can be a Perfect Square.
2. If a no. ends with digits -, -, - ,- then it is not a Perfect Square.
3. How many Perfect Square are there in between 10 & 20.
4. Square of 84 ends with ------- digit.
5. How many Zeros are there in

   Square of 70-------

   Square of 700-------
6. Complete Pythagorean Triplets

(3, 4, _)

(_ ,8, 10)

(5,__, 13)

Answer:

1. 0,1,4,5,6,9
2. 2,3,7,8
3. Only 16
4. 6
5. 70---2 zeros

   700--4 zeros
6. (3,4,5)

   (6,8,10)

   (5,12,13)