

Squares and Square Roots

Exercise 3H

Q1

Answer :

(c) 5478

According to the properties of squares, a number ending in 2, 3, 7 or 8 is not a perfect square.

Q2

Answer :

(d) 2222

According to the property of squares, a number ending in 2, 3, 7 or 8 is not a perfect square.

Q3

Answer :

(a) 1843

According to the property of squares, a number ending in 2, 3, 7 and 8 is not a perfect square.

Q4

Answer :

(b) 4787

By the property of squares, a number ending in 2, 3, 7 or 8 is not a perfect square.

Q5

Answer :

(c) 81000

According to the property of squares, a number ending in odd number of zeroes is not a perfect square.

Q6

Answer :

(d) 8

According to the property of squares, a perfect square cannot have 2, 3, 7 or 8 as the unit digit.

Q7

Answer :

(b) smaller than the fraction

Q8

Answer :

(c) n^2

Q9

Answer :

(d) (8,15,17)

This can be understood from the property of Pythagorean triplets. According to this property, for a natural number m , $(2m, m^2 - 1, m^2 + 1)$ is a Pythagorean triplet.

Here, $m = 4$

$$2m = 8$$

$$m^2 - 1 = 15$$

$$\text{and } m^2 + 1 = 17$$

Q10

Answer :

(c) 7

$$(176 - 7) = 169$$

$$\sqrt{169} = 13$$

Q11

Answer :

(a) 3

$$526 + 3 = 529$$

$$529 = 23^2$$

Q12

Answer :

(b) 6

$$15370 + 6 = 15376$$

$$\sqrt{15376} = 124$$

Q13

Answer :

(d) 0.94

$$\begin{array}{r} 0.94 \\ 9 \overline{) 0.9000} \\ \underline{9} \\ 184 \\ \underline{180} \\ 400 \\ \underline{360} \\ 400 \\ \underline{360} \\ 400 \\ \underline{360} \\ 400 \end{array}$$

$$\sqrt{0.9} = 0.94$$

Q14

Answer :

(c) 0.316

Using long division method:

$$\begin{array}{r} 0.316 \\ 3 \overline{) 0.10\ 00\ 00} \\ \underline{3} 9 \\ 61 1\ 00 \\ \underline{1} 61 \\ 626 39\ 00 \\ \underline{6} 37\ 56 \\ 1\ 44 \end{array}$$

$$\therefore \sqrt{0.1} = 0.316$$

Q15

Answer :

(b) 1.2

$$\sqrt{0.9} \times \sqrt{1.6} = \sqrt{1.44} = 1.2$$

Q16

Answer :

(c) $\frac{3}{2}$

$$\frac{\sqrt{288}}{\sqrt{128}} = \sqrt{\frac{288}{128}} = \sqrt{\frac{2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3}{2 \times 2 \times 2 \times 2 \times 2 \times 2}} = \sqrt{\frac{3 \times 3}{2 \times 2}} = \frac{\sqrt{3 \times 3}}{\sqrt{2 \times 2}} = \frac{3}{2}$$

Q17

Answer :

(b) $1\frac{1}{2}$

$$\sqrt{2\frac{1}{4}} = \sqrt{\frac{9}{4}} = \frac{\sqrt{9}}{\sqrt{4}} = \frac{3}{2} = 1\frac{1}{2}$$

Q18

Answer :

(a) 196

Square of an even number is always an even number.

Q19

Answer :

(c) 1369

Square of an odd number is always an odd number.

Q20

Answer :

$$\begin{array}{r} 0.53 \\ 5 \overline{) 0.28\ 09} \\ \underline{5} 25 \\ 103 3\ 09 \\ \underline{3} 3\ 09 \\ 0 \end{array}$$

$$\therefore \sqrt{0.2809} = 0.53$$