Squares and Square Roots Ex 3.2 Q13

Answer :

A number whose unit digit is 2, 3, 7 or 8 cannot be a perfect square.
On the other hand, a number whose unit digit is 1, 4, 5, 6, 9 or 0 might be a perfect square (although we will have to verify whether it is a perfect square or not).
Applying the above two conditions, we cannot quickly decide whether the following numbers are squares of any numbers:
1111, 1444, 1555, 1666, 1999

Squares and Square Roots Ex 3.2 Q14

Answer :

A number whose unit digit is 2, 3, 7 or 8 cannot be a perfect square.
On the other hand, a number whose unit digit is 1, 4, 5, 6, 9 or 0 might be a perfect square although we have to verify that.
Applying these two conditions, we cannot determine whether the following numbers are squares just by looking at their unit digits:
1111, 1001, 1555, 1666 and 1999

Squares and Square Roots Ex 3.2 Q15

Answer :

(i) False
Example: 100 is the square of a number but its number of digits is three, which is not an even number.

(ii) False
If p is a prime number, its square is p^2, which has at least three factors: 1, p and p^2. Since it has more than two factors, it is not a prime number.

(iii) False
1 is the square of a number ($1 = 1^2$). But $1 + 1 = 2$, which is not the square of any number.

(iv) False
4 and 1 are squares ($4 = 2^2$, $1 = 1^2$). But $4 - 1 = 3$, which is not the square of any number.

(v) True
If a^2 and b^2 are two squares, their product is $a^2 \times b^2 = (a \times b)^2$, which is a square.

(vi) True
The square of a negative number will be positive because negative times negative is positive.

(vii) True
$7^2 = 49$ and $8^2 = 64$. 7 and 8 are consecutive numbers and hence there are no square numbers between 50 and 60.

(viii) True
14^2 is equal to 196, which is below 200. There are 14 square numbers below 200.

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