

Estimating Square Roots

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- _____ 1. Between which 2 consecutive whole numbers is $\sqrt{111}$?
a. 27 and 28 b. 110 and 112 c. 100 and 121 d. 10 and 11
- _____ 2. Which whole number is $\sqrt{8}$ closer to?
a. 5 b. 4 c. 3 d. 2
- _____ 3. Which whole number is $\sqrt{151}$ closer to?
a. 11 b. 12 c. 14 d. 13
- _____ 4. What is the greatest whole number less than $\sqrt{53}$?
a. 27 b. 7 c. 8 d. 13
- _____ 5. Simplify $\sqrt{15} + \sqrt{11}$ to the nearest whole number.
a. 7 b. 8 c. 5 d. 13

Short Answer

6. Between which 2 consecutive whole numbers is $\sqrt{15}$?
7. A square plot of land has area 140 m^2 .
Find the approximate side length of the plot of land.
Give the answer to 2 decimal places.
8. Is 5 greater than, less than, or equal to $\sqrt{32}$?
9. A square and a rectangle have the same area.
If the rectangle measures 19 m by 10 m, estimate the side length of the square.
Give your answer to the nearest metre.

Problem

10. A square park has area 120 m^2 .
a) What are the dimensions of the park? Give your answer to the nearest metre.
b) If fencing costs $\$18.50/\text{m}$, how much would it cost to install a fence around the park?
Show your work.

Estimating Square Roots

Answer Section

MULTIPLE CHOICE

- | | | | |
|------------------------|-----------------------|--|----------------------------------|
| 1. ANS: D
LOC: 8.N2 | PTS: 1
TOP: Number | DIF: Easy
KEY: Conceptual Understanding | REF: 1.4 Estimating Square Roots |
| 2. ANS: C
LOC: 8.N2 | PTS: 1
TOP: Number | DIF: Easy
KEY: Conceptual Understanding | REF: 1.4 Estimating Square Roots |
| 3. ANS: B
LOC: 8.N2 | PTS: 1
TOP: Number | DIF: Easy
KEY: Conceptual Understanding | REF: 1.4 Estimating Square Roots |
| 4. ANS: B
LOC: 8.N2 | PTS: 1
TOP: Number | DIF: Easy
KEY: Conceptual Understanding | REF: 1.4 Estimating Square Roots |
| 5. ANS: A
LOC: 8.N2 | PTS: 1
TOP: Number | DIF: Moderate
KEY: Conceptual Understanding | REF: 1.4 Estimating Square Roots |

SHORT ANSWER

- | | | | |
|---------------------------------------|---------------------|-------------------------------|--|
| 6. ANS:
3 and 4 | PTS: 1
LOC: 8.N2 | DIF: Moderate
TOP: Number | REF: 1.4 Estimating Square Roots
KEY: Conceptual Understanding |
| 7. ANS:
11.83 m | PTS: 1
LOC: 8.N2 | DIF: Moderate
TOP: Number | REF: 1.4 Estimating Square Roots
KEY: Conceptual Understanding |
| 8. ANS:
5 is less than $\sqrt{32}$ | PTS: 1
LOC: 8.N2 | DIF: Moderate
TOP: Number | REF: 1.4 Estimating Square Roots
KEY: Conceptual Understanding |
| 9. ANS:
14 m | PTS: 1
LOC: 8.N2 | DIF: Difficult
TOP: Number | REF: 1.4 Estimating Square Roots
KEY: Conceptual Understanding Problem-solving Skills |

PROBLEM

10. ANS:

- a) The side length of the square park is: $\sqrt{120} \approx 11$ m
- b) To find how much fencing would cost, find the perimeter of the park.
The perimeter of the park is about: 4×11 m = 44 m
The cost of the fencing is: 44 m \times \$18.50/m = \$814

PTS: 1

DIF: Difficult

REF: 1.4 Estimating Square Roots

LOC: 8.N2

TOP: Number

KEY: Communication | Problem-solving Skills