Name: _____ Date: _____

Grade 8 Quiz 1 Practice Questions

Multiple Choice

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

____ 1. Which 2 consecutive square numbers is 54 between?
a. 53 and 55 b. 28 and 32 c. 49 and 64 d. 12 and 16

____ 2. Suzanne wants to put a fence around her square garden.
If the garden covers an area of 169 m², how many metres of fencing does she need?
a. 13 m b. 52 m c. 26 m d. 676 m

____ 3. 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

____ 4. Which whole number is $\sqrt{8}$ closer to?
a. 5 b. 4 c. 3 d. 2

____ 5. Simplify $\sqrt{15} + \sqrt{11}$ to the nearest whole number.
a. 7 b. 8 c. 5 d. 13

____ 6. Find the approximate side length of a square with area 27 cm².
Give your answer to 1 decimal place.
a. 13.5 cm b. 6.8 cm c. 5.2 cm d. 3.7 cm

Short Answer

7. Which of these numbers is a perfect square: 34, 36, 38, or 40?

8. Which 2 consecutive square numbers is 126 between?

9. Find the side length of a square with area 144 cm².

10. A square book cover has area 25 square units.
Find the perimeter of the book cover.

11. Find the square of 16.

12. Find 8^2.

13. Find $\sqrt{64}$.

14. Order from least to greatest: 5^2, 4^2, $\sqrt{289}$, 19

15. Which perfect squares have square roots between 6 and 10?

16. Is 5 greater than, less than, or equal to $\sqrt{32}$?

17. What is the side length of a square with area 25 cm²?

Problem

18. The numbers 2, 3, 5, 7, 11, and 13 are written on separate cards. Which pairs of numbers give a sum that is a perfect square? Find all possible solutions.

19. a) List the factors of each number in ascending order.
    i) 24
    ii) 20
    iii) 25
    iv) 50
    b) Which number in part a is a square number? How can you tell?

20. Which whole number is $\sqrt{137}$ closer to?

21. Which numbers below are perfect squares? Draw diagrams to support your answers.
    a) 15 b) 26 c) 65 d) 100

1.2

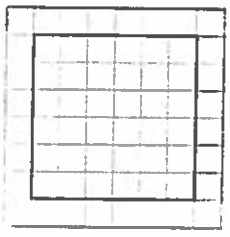
22. Find a square root of each number.
    a) 16 b) 49 c) 196 d) 400

23. Find.
    a) 11^2 b) $\sqrt{64}$ c) $\sqrt{169}$ d) $\sqrt{225}$

1.1
1.2

24. Copy each square onto 1-cm grid paper.
    i) Find the area of each square.
    ii) Write the side length of each square as a square root.

a) 

b) 

25. List the factors of each number below in order from least to greatest. Which of the numbers are square numbers? How do you know? For each square number below, write a square root.
    a) 216 b) 364 c) 729

1.3

26. If you know a square number, how can you find its square root? Use diagrams, symbols, and words.

27. a) The area of a square is 24 cm^2.
    What is its side length?
    Why is the side length not a whole number?
    b) The side length of a square is 9 cm.
    What is its area?

28. Between which two consecutive whole numbers does each square root lie? How do you know? Sketch a number line to show your answers.
    a) $\sqrt{3}$ b) $\sqrt{65}$ c) $\sqrt{72}$ d) $\sqrt{50}$

29. Use guess and test to estimate each square root to two decimal places. Record each trial.
    a) $\sqrt{17}$ b) $\sqrt{108}$ c) $\sqrt{33}$ d) $\sqrt{79}$

Name: Answers Date: _____

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Multiple Choice

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

C 1. Which 2 consecutive square numbers is 54 between?
a. 53 and 55 b. 28 and 32 c. 49 and 64 d. 12 and 16

B 2. Suzanne wants to put a fence around her square garden.
If the garden covers an area of 169 m², how many metres of fencing does she need?
a. 13 m b. 52 m c. 26 m d. 676 m

D 3. 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

C 4. Which whole number is $\sqrt{8}$ closer to?
a. 5 b. 4 c. 3 d. 2

A 5. Simplify $\sqrt{15} + \sqrt{11}$ to the nearest whole number.
a. 7 b. 8 c. 5 d. 13

C 6. Find the approximate side length of a square with area 27 cm².
Give your answer to 1 decimal place.
a. 13.5 cm b. 6.8 cm c. 5.2 cm d. 3.7 cm

Short Answer

7. Which of these numbers is a perfect square: 34, 36, 38, or 40?

8. Which 2 consecutive square numbers is 126 between? 121 and 144

9. Find the side length of a square with area 144 cm².

(9) 12 × 12 = 144, side length = 12 cm

10. A square book cover has area 25 square units.
Find the perimeter of the book cover.

(10) 5 × 5 = 25, Perimeter = 4 × 5 = 20 units

11. Find the square of 16. $16^2 = 256$

12. Find 8^2. $8 \times 8 = 64$

13. Find $\sqrt{64}$. $= 8$

14. Order from least to greatest: 5^2, 4^2, $\sqrt{289}$, 19

$5^2 = 25$, $4^2 = 16$, $\sqrt{289} = 17$, 19

So... $4^2, \sqrt{289}, 19, 5^2$

15. Which perfect squares have square roots between 6 and 10?

(15) 6^2 7^2 8^2 9^2 10^2
36 49 64 81 100

16. Is 5 greater than, less than, or equal to $\sqrt{32}$?

17. What is the side length of a square with area 25 cm²?

5 × 5 = 25, Side length = 5cm

Problem

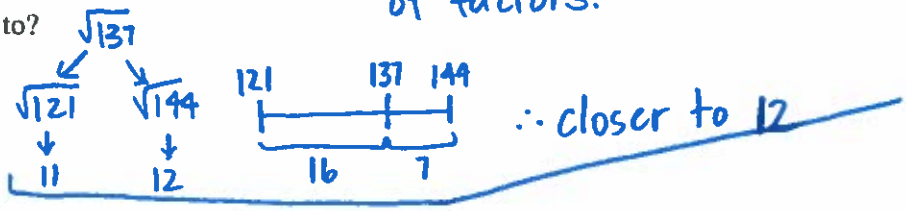
2+7=9 5+11=16
3+13=16

18. The numbers 2, 3, 5, 7, 11, and 13 are written on separate cards. Which pairs of numbers give a sum that is a perfect square? Find all possible solutions.

19. a) List the factors of each number in ascending order.
    i) 24
    ii) 20
    iii) 25
    iv) 50
    b) Which number in part a is a square number? How can you tell?

Square #s have an odd # of factors.

20. Which whole number is $\sqrt{137}$ closer to?



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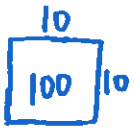

square # → square root

1.2

22. Find a square root of each number.
    a) 16 b) 49 c) 196 d) 400
    a) 4 b) 7 c) 14 d) 20

23. Find.
    a) 11^2 b) $\sqrt{64}$ c) $\sqrt{169}$ d) $\sqrt{225}$
    1.1 1.2
    a) 121 b) 8 c) 13 d) 15

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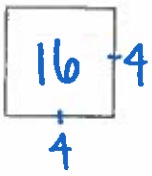
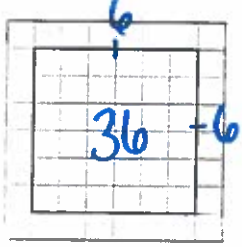


b)



25. List the factors of each number below in order from least to greatest.
    Which of the numbers are square numbers? How do you know? — has an odd # of factors
    For each square number below, write a square root.
    a) 216 b) 364 c) 729

c) 729 : 1, 3, 9, 27, 81, 243, 729

216: 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 27, 36, 54, 72, 108, 216

364: 1, 2, 4, 7, 13, 14, 26, 28, 52, 91, 182, 364

1.3

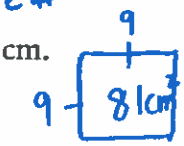
26. If you know a square number, how can you find its square root? Use diagrams, symbols, and words.

$\sqrt{\text{sq. \#}}$ = sq. root

- arrange sma squares to m a larger or
- side length will be square ro

27. a) The area of a square is 24 cm². What is its side length? ≈ 4.9 cm
    Why is the side length not a whole number? 24 is not a square #
    b) The side length of a square is 9 cm. What is its area?

√24 is close to √25 ... just a bit lower



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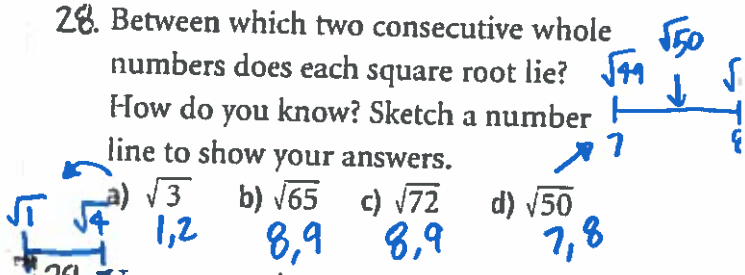
    a) $\sqrt{3}$ b) $\sqrt{65}$ c) $\sqrt{72}$ d) $\sqrt{50}$
    a) 1, 2 b) 8, 9 c) 8, 9 d) 7, 8



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