1. Copy homework in your planner

leave planner open on your desk so that I can see your homework

2. Copy the table of contents

3. Tape notebook guidelines to inside front cover of spiral

Perfect Squares Introduction Activity

Use the graph paper side of the dry erase board to answer the following questions below.

1. Draw the smallest square possible following the lines of the grid. How many squares were used?

2. Draw the next smallest square possible following the lines of the grid. How many squares were used?

3. Draw another square one size larger. How many squares did you use?

4. Draw a rectangle that uses 25 squares. What is the length and the width of the rectangle? Can you create more than one rectangle?

5. Draw a rectangle that uses 30 squares? What is the length and width of the rectangle? Can you create more than one rectangle?

6. Draw a rectangle that uses 24 squares? What is the length and width of the rectangle? Can you create more than one rectangle?

7. Record the length and width of each of the figures that you created from the questions above. Describe any patterns that you see.

Length	*Width*	*Number of Squares*	$\sqrt{\text{Number of Squares}}$
1	1	1	1
2	2	4	2
3	3	9	3
2	15	30	$\sqrt{30}$
4	6	24	NONE

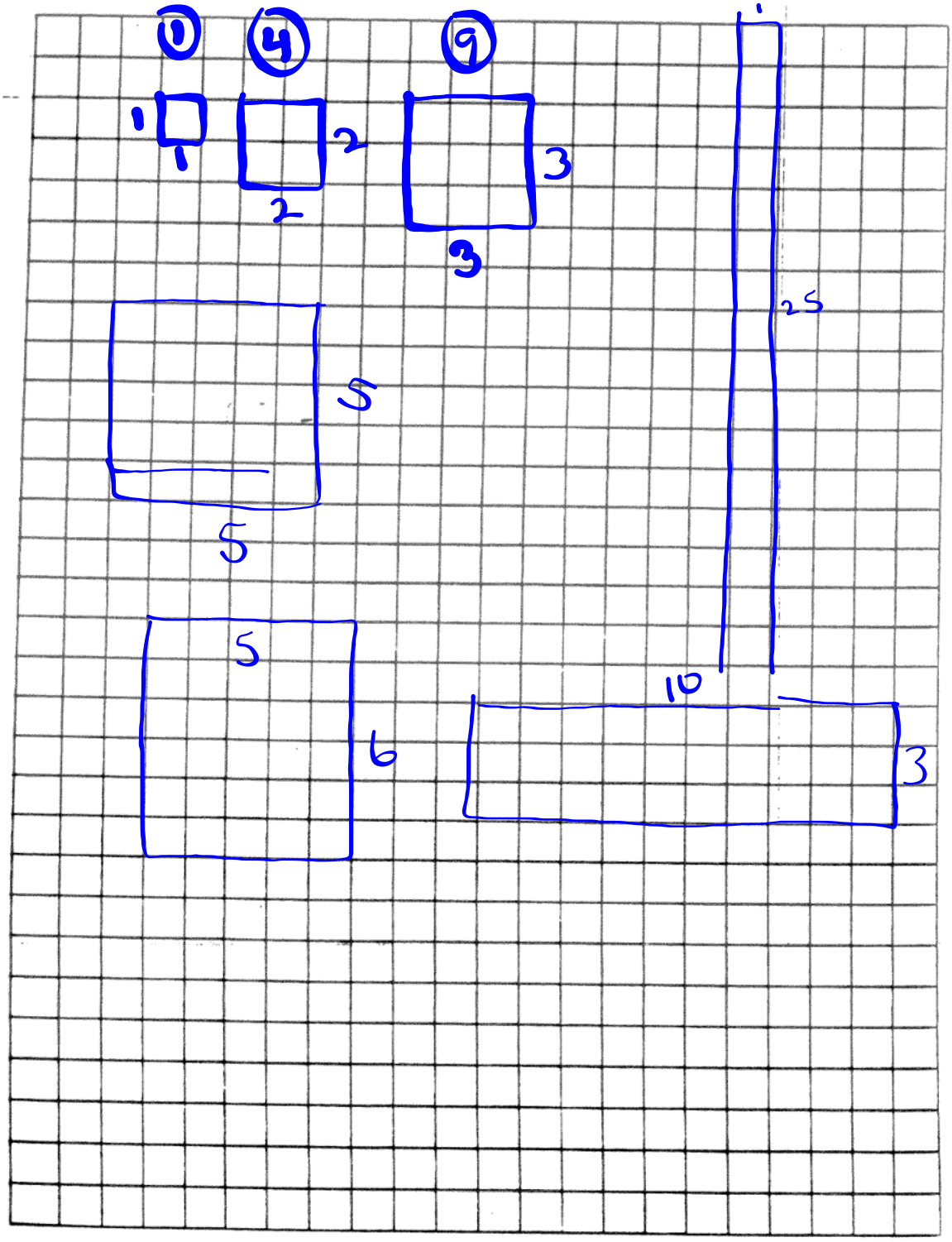
$\sqrt{\ }$ Square Root

$\sqrt{4}$
$\sqrt{9}$

→ not a perfect Sq.

Key Concept:

A perfect square is congruent on 4 sides. Its square root is the length/width.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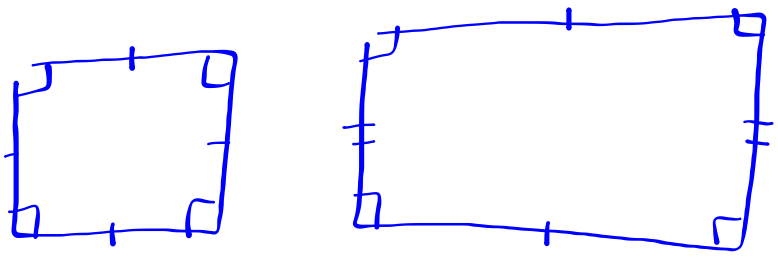


Perfect Squares Chart

Name _____ Date _____

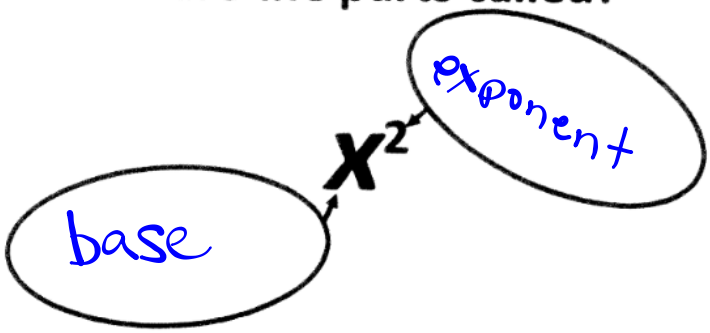
How can I write 9 · 9 in a condensed form? 9^2

This can be read as
"9 to the second power" or
"nine squared."

How can I write 4 · 4 in a condensed form? 4^2

This can be read as
"4 to the second power" or
"four squared."

What are the parts called?



PERFECT SQUARES

n	n^2
1	$1 \cdot 1 = 1$
2	$2 \cdot 2 = 4$
3	$3 \cdot 3 = 9$
4	
5	
6	
7	
8	
9	
10	
11	
12	

$\sqrt{4}_2$ = $\sqrt{9}_3$ =

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples
PERFECT SQUARES	The square of an integer is called a perfect square **Generate the first 10 perfect squares below:** 1^2 2^2 3^2 4^2 5^2 6^2 7^2 8^2 9^2 10^2 1 4 9 16 25 36 49 64 81 100
SQUARE ROOTS	• The opposite of squaring a number is finding the square root • Positive numbers have 2 square roots. $4(4)=16$ ➢ **Why?** What number(s) can you square to get 16? $(-4)(-4)=16$ • Negative numbers have NO square roots. • What number only has one square root? 0
RADICAL NOTATION	• The **radical sign**, $\sqrt{x}$, is used to indicate the square root of x. ➢ $\sqrt{x}$ is used to indicate the positive square root of x. ➢ $-\sqrt{x}$ is used to indicate the negative square root of x.
Examples	**Directions:** Find each square root. **1.** $\sqrt{49}$ 7 (49 → 7 × 7) **2.** $\sqrt{9}$ 3 (9 → 3 × 3) **3.** $-\sqrt{4}$ -2 **4.** $-\sqrt{289}$ -17 **5.** $-\sqrt{196}$ -14 **6.** $\sqrt{484}$ 22 **7.** $\sqrt{\frac{1}{16}}$ $\frac{\sqrt{1}}{\sqrt{16}}$ $\frac{1}{4}$ **8.** $-\sqrt{\frac{81}{25}}$ $-\frac{9}{5}$ **9.** $\sqrt{\frac{49}{144}}$ $\frac{7}{12}$
PERFECT VS. NON-PERFECT *Squares*	**Directions:** CIRCLE each value that is a perfect square. 9 32 50 121 1 160 64 200 324 If a number is not a perfect square, it's called a **non-perfect square**.

18 × 18 = 144 + 180 = 324

Estimating NON-PERFECT SQUARE ROOTS

Directions: Identify the two consecutive integers in which each square root lies between.

10. $\sqrt{10}$	**11.** $\sqrt{115}$	**12.** $\sqrt{59}$
13. $-\sqrt{41}$	**14.** $-\sqrt{3}$	**15.** $-\sqrt{206}$

Directions: Approximate each square root to the nearest tenth.

16. $\sqrt{84}$	**17.** $-\sqrt{27}$	**18.** $\sqrt{145}$

PERFECT CUBES

The cube of an integer is called a _____ _____.

Generate the first 10 perfect cubes below:

1^3 2^3 3^3 4^3 5^3 6^3 7^3 8^3 9^3 10^3

_____, _____, _____, _____, _____, _____, _____, _____, _____, _____

CUBE ROOTS

- The opposite of cubing a number is finding the _____ _____.
- ALL integers have only _____ cube root.
  - **Why?** What number(s) can you cube to get 8? _____
    What number(s) can you cube to get -8? _____
- The **radical sign**, $\sqrt[3]{x}$, is used to indicate the cube root of x.

Examples

Directions: Find each cube root.

19. $\sqrt[3]{64}$	**21.** $\sqrt[3]{343}$	**21.** $\sqrt[3]{-27}$
22. $\sqrt[3]{-1}$	**23.** $\sqrt[3]{-2,197}$	**24.** $\sqrt[3]{512}$

Summary: _____

Homework

As the Cat Dressed Up as a Cowboy Walked into a Saloon with His Arm in a Sling, What Did He Say?

Find each answer in the appropriate set of boxes at the bottom of the page.
Write the letter of the exercise in the box containing the answer.

I. Find the length of one side (s) of each square.

(I) Area $25\ m^2$ — s = _____ m

(O) Area $64\ cm^2$ — s = _____ cm

(M) Area $400\ ft^2$ — s = _____ ft

II. Find the square root.

(T) $\sqrt{49}$	(O) $\sqrt{16}$	(E) $\sqrt{100}$	(N) $\sqrt{81}$
(R) $\sqrt{36}$	(O) $\sqrt{4}$	(I) $\sqrt{144}$	(G) $\sqrt{1}$
(H) $\sqrt{900}$	(L) $\sqrt{2,500}$	(F) $\sqrt{6,400}$	(K) $\sqrt{10,000}$

III. Simplify.

(O) 15^2	(W) 11^2	(T) 25^2
(A) $\sqrt{225}$	(O) $\sqrt{121}$	(W) $\sqrt{625}$
(N) $\sqrt{16} + \sqrt{9}$	(A) $\sqrt{36} + \sqrt{64}$	(M) $\sqrt{25} - \sqrt{9}$
(S) $\sqrt{16 + 9}$	(M) $\sqrt{36 + 64}$	(H) $\sqrt{25 - 9}$
(Y) $\sqrt{0.25}$	(H) $\sqrt{0.81}$	(P) $\sqrt{0.01}$

Answers for Part I and Part II

12	20	11	50	4	2	100	5	9	1	60	80	8	6	3	7	30	10	90

Answers for Part III

2	14	7	18	121	0.9	225	12	5	4	11	625	0.4	10	0.5	715	0.1	15	25