

Name: \_\_\_\_\_

Date: \_\_\_\_\_

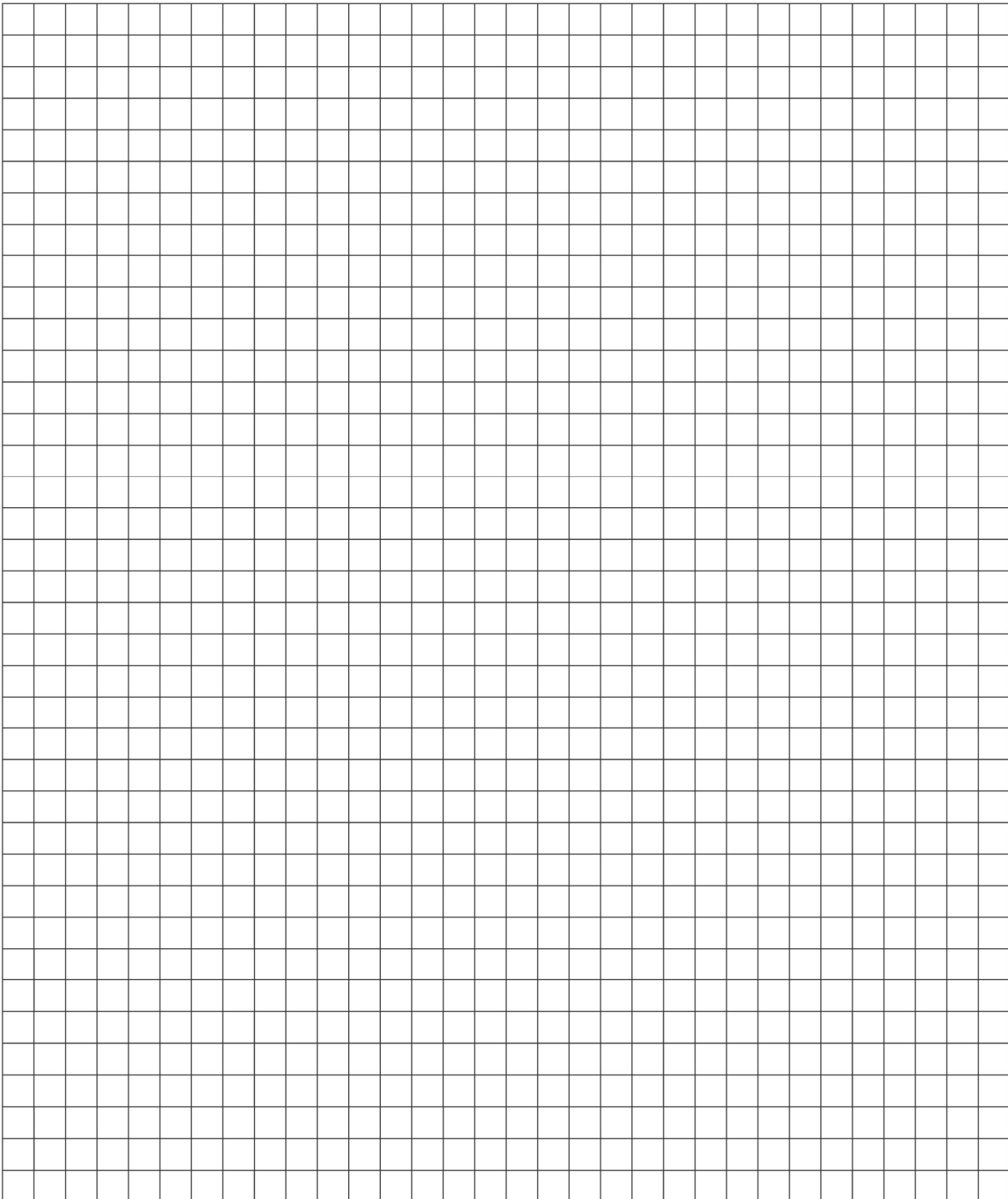
## Math 8

### Lesson S1 ~ Perfect Squares, Square Roots, and Area of a Square

Using the grid paper below, draw and colour squares with the following side lengths, and then write the area inside each square (*Hint: area = base x height*)

Square side lengths:

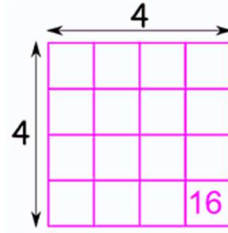
- 1 unit
- 2 units
- 3 units
- 4 units
- 5 units
- 6 units
- 7 units
- 8 units
- 9 units



A **perfect square** is a number created by squaring a whole number (or multiplying a whole number by itself). Perfect squares are also known as **square numbers**.

We can use different ways to show that a number is a perfect square.

- Diagram: 16 is a perfect square because we can draw a square with an area of 16 square units.



- Symbols:  $4^2 = 4 \times 4 = 16$
- Words: "four squared is 16"

**Example #1**: Complete the following table

|          | Diagram | Symbols | Words |
|----------|---------|---------|-------|
| a) $3^2$ |         |         |       |
| b) $6^2$ |         |         |       |

A **square root** is the number that is multiplied by itself to create a perfect square. It is written with a **radical**:  $\sqrt{\quad}$ .

Finding the **square root** of a number is the **inverse** (opposite) of **squaring** a number; they undo each other.

So,  $12^2 = 12 \times 12 = 144 \rightarrow$  144 is the square of 12

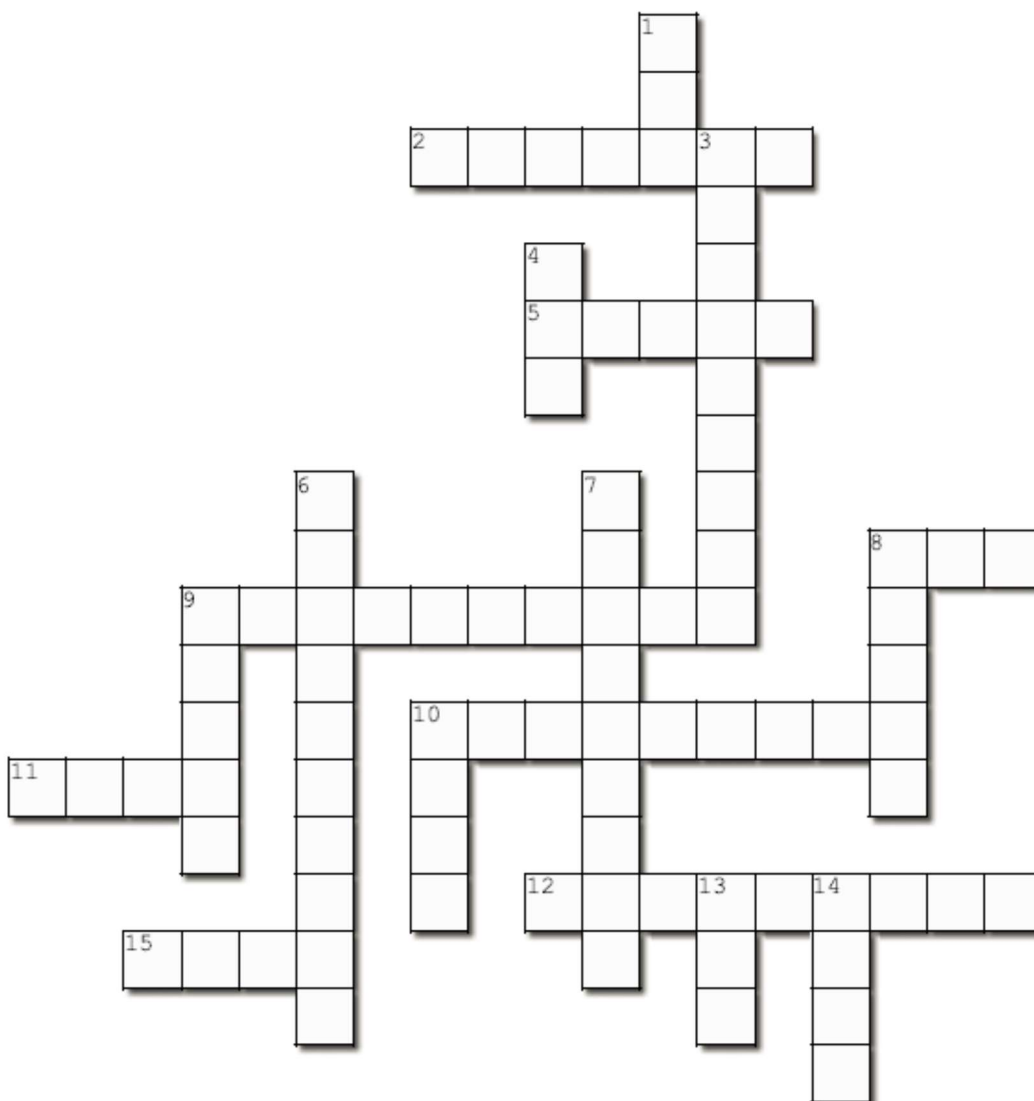
and  $\sqrt{144} = 12$  because  $144 \div 12 = 12 \rightarrow$  12 is the square root of 144

**Example #2:** Complete the following table.

|                | Diagram | Symbols | Words |
|----------------|---------|---------|-------|
| a) $\sqrt{4}$  |         |         |       |
| b) $\sqrt{25}$ |         |         |       |

# Perfect Squares & Square Roots

Complete the crossword puzzle below



Created using the Crossword Maker on TheTeachersCorner.net

## Across

2. What is four squared?
5. What is the square root of sixty four?
8. What is the square root of thirty six?
9. What is five squared?
10. What is seven squared?
11. What is the square root of twenty five?
12. What is eight squared?
15. What is the square root of eighty one?

## Down

1. What is the square root of one?
3. What is nine squared?
4. What is the square root of one hundred?
6. What is ten squared?
7. What is six squared?
8. What is the square root of forty nine?
9. What is the square root of nine?
10. What is the square root of sixteen?
13. What is the square root of four?
14. What is two squared?