Math 9   *Name:* _____

1.1 – Square Roots of Perfect Squares   *Date:* _____

Pre-Requisites

A. Simplifying Fractions – Divide the numerator and denominator by the GCF.

Examples: $\dfrac{5}{10} =$ $\dfrac{12}{60} =$ $\dfrac{28}{63} =$

B. Converting Fractions to Decimals – Divide the numerator by the denominator.

Examples: $\dfrac{5}{10}$ $\dfrac{7}{12}$

C. Converting Decimals to Fractions – Re-write the decimal as a whole number over a power of 10 and reduce.

Examples: $0.1 =$ $2.25 =$

D. Terminating & Repeating Decimals

Examples of Terminating Decimals: $\dfrac{3}{4} =$ $\dfrac{1}{8} =$

Examples of Repeating Decimals: $\dfrac{2}{3} =$ $\dfrac{1032}{990} =$

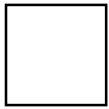Non-terminating and non-repeating: $\dfrac{5}{19} =$

Today's lesson…

1. How do we determine the area of a square given its side length?_____

2. How do we determine the side length of a square given its area? _____

Determine a Square given its Square Root

3. Find the area of a square with side length of:

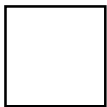a. $6\ cm$

Area =

b. $\dfrac{3}{2}\ mm$

Area =

c. $1.2\ m$

Area =

Determine a Square Root given its Square

4. Find the side length for the given area:

a. $144\ m^2$

Side length =

b. $\dfrac{4}{9}\ cm^2$

Side length =

c. $0.64\ mm^2$

Side length =

5. Determine the **SQUARE** of 16 and the **SQUARE ROOT** of 16. Are they the same values or different?

Perfect Squares

A Perfect Square is any **WHOLE** number, **FRACTION**, or **DECIMAL** that can be written as a **PRODUCT** of **TWO** equal **FACTORS**.

Examples: Is 49 a PS?

Is $\dfrac{9}{16}$ a PS?

Is 0.36 a PS?

6. List all the **WHOLE NUMBER** perfect squares between 1 and 100:

7. List all the **DECIMAL** perfect squares between 0.01 and 0.64:

8. Write 5 **FRACTION** perfect squares:

9. Find the Perfect Square given the following Square Roots:

a. $\dfrac{5}{8}$

b. 1.2

c. $\dfrac{3}{13}$

d. 0.5

e. 2.25

f. $\dfrac{1}{2}$

How to determine if a fraction or decimal is a Perfect Square.

A **FRACTION** is a **PERFECT SQUARE** if the **NUMERATOR** and the **DENOMINATOR** are both perfect squares, *AFTER THE FRACTION HAS BEEN COMPLETELY REDUCED.*

10. Are the following perfect squares? State your reasoning.

a. $\dfrac{9}{25}$

b. $\dfrac{20}{45}$

c. $\dfrac{32}{46}$

d. 2.25

e. 0.27

f. 0.16

Identifying Perfect Squares using a Calculator

The **SQUARE ROOT** of a perfect square is always either a **TERMINATING** decimal or a **REPEATING** decimal.

11. Determine if the following are perfect squares, using your calculator. State your reasoning.

a. 1.69

b. 3.5

c. 6.26

d. 0.25

e. $\dfrac{8}{18}$

f. $\dfrac{5}{19}$

Assignment 1.1:

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*List all **Whole Number perfect squares** between 1 and 225 and the values of their Square Roots. The first three have been done for you.*

PS	$\sqrt{PS}$
1	$\sqrt{1} = 1$
4	$\sqrt{4} = 2$
9	$\sqrt{9} = 3$

*List all **Decimal Number perfect squares** between 0.1 and 2.25 and the values of their Square Roots. The first three have been done for you.*

PS	$\sqrt{PS}$
0.01	$\sqrt{0.01} = 0.1$
0.04	$\sqrt{0.04} = 0.2$
0.09	$\sqrt{0.09} = 0.3$