**Name:** _____ **Class:** _____ **Date:** _____ **ID: A**

# Unit 1 Review: Real Numbers and the Pythagorean Theorem

**Match the vocabulary terms down below with their definition.**

a. Rational Numbers
b. Integers
c. Real Numbers
d. Whole Numbers
e. perfect square
f. irrational number

1. Numbers that cannot be written in the form $\frac{a}{b}$, such as non terminating decimals and non-perfect square roots.
2. Numbers that can be written in the form $\frac{a}{b}$.
3. the set of numbers that includes rational and irrational numbers.
4. the subset of numbers that include non-decimal positve and negative numbers.
5. the subset of numbers that include zero and non-decimal positve numbers
6. A number that is the square of a whole number.
7. Without using a Calculator or your Notebook, fill in the answers to the square roots down below.

| | | | | | |
|---|---|---|---|---|---|
| $\sqrt{144}$ | | $\sqrt{121}$ | | $\sqrt{16}$ | |
| $\sqrt{81}$ | | $\sqrt{1}$ | | $\sqrt{49}$ | |
| $\sqrt{36}$ | | $\sqrt{64}$ | | $\sqrt{4}$ | |
| $\sqrt{25}$ | | $\sqrt{9}$ | | $\sqrt{100}$ | |

8. Without using a Calculator Estimate the following square roots. Use the fraction method.

| | | | | | |
|---|---|---|---|---|---|
| $\sqrt{155}$ | | $\sqrt{292}$ | | $\sqrt{13}$ | |
| $\sqrt{95}$ | | $\sqrt{119}$ | | $\sqrt{45}$ | |
| $\sqrt{29}$ | | $\sqrt{615}$ | | $\sqrt{467}$ | |
| $\sqrt{6}$ | | $\sqrt{389}$ | | $\sqrt{102}$ | |

**What is the simplified form of each expression?**

9. $\sqrt{169}$
10. $\sqrt{\frac{25}{100}}$

11. $\sqrt{\frac{1}{169}}$

12. What is the square root of 61 to the nearest integer?

13. Find the two square roots of 121.

14. Estimate the value of $\sqrt{43}$ to the nearest integer.

15. What is a rational number? Give examples.

16. What is an irrational number? Give examples.

**Identify the number as *rational* or *irrational*.**

17. 1.875

18. $\sqrt{112}$

19. 0.5

20. $\sqrt{67}$

21. $\pi$

22. Solve the following equations. Estimate with a fraction for non perfect square roots.

a.) $x^2 = -16$ b.) $a^2 = 178$ c.) $f^2 = 256$ d.) $y^2 = 45$

e.) $a^3 = -27$ f.) $x^3 = 512$ g.) $f^2 = -216$ g.) $t^3 = 64$

23. Solve the follwoing equations.

$\sqrt{x} = 17$ $\sqrt{a} = -5$ $\sqrt{k} = 25$ $\sqrt{p} = -20$

$\sqrt[3]{t} = 9$ $\sqrt[3]{x} = 2$ $\sqrt[3]{z} = -10$ $\sqrt[3]{g} = 7$