**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per.\_\_\_\_\_\_\_ Score:\_\_\_\_\_**

**U14 HWK #1** *The Rational Number System*

**Directions**: Change the following rational numbers into decimals **without** the use of a calculator.

|  |  |
| --- | --- |
| * 1. $\frac{1}{5}$
 | * 1. $\frac{7}{4}$
 |
| * 1. $\frac{5}{8}$
 | * 1. $\frac{2}{3}$
 |
| * 1. $\frac{2}{9}$
 | * 1. $\frac{3}{11}$
 |

**Directions:** The table below contains statements about rational and irrational numbers. If the statement is true, put a check in the box. If the statement is not true, write a correct statement.

|  |  |
| --- | --- |
| **Statement** | **Check if True or Correct Statement** |
| You can show the exact decimal expansion of the side length of a square with an area of 5 square units. |  |
| You can construct and show the length $\sqrt{5}$ on a number line. |  |
| Square roots of numbers that are perfect squares are rational. |  |
| The number $0.256425642564…$ is rational. |  |
| You can always use a calculator to determine whether a number is rational or irrational by looking at its decimal expansion. |  |
| The number $0.\overbar{6}$ is irrational because its decimal expansion goes on forever. |  |
| The number half-way between 3 and 4 is rational. |  |
| If you divide an irrational number by 2, you will still have an irrational number. |  |

Give your own example of a rational number. Give your own example of an irrational number.

**Directions:** Classify the following numbers as rational or irrational and provide a justification.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Number** | **Whole number** | **Integer** | **Rational number** | **Irrational number** | **Real** | **Justification** |
| 1. $\sqrt{2}$
 |  |  |  |  |  |  |
| 1. $\sqrt{1}$
 |  |  |  |  |  |  |
| 1. $\frac{1}{3}$
 |  |  |  |  |  |  |
| 1. $-157$
 |  |  |  |  |  |  |
| 1. $4\frac{1}{9}$
 |  |  |  |  |  |  |
| 1. $-0.375$
 |  |  |  |  |  |  |
| 1. $-\sqrt{5}$
 |  |  |  |  |  |  |
| 1. $0.\overbar{2}$
 |  |  |  |  |  |  |
| 1. $\sqrt[3]{125}$
 |  |  |  |  |  |  |
| 1. $-\sqrt{81}$
 |  |  |  |  |  |  |
| 1. $-2.2\overbar{4}$
 |  |  |  |  |  |  |
| 1. $2π$
 |  |  |  |  |  |  |
| 1. The side length of a square with an area of 49
 |  |  |  |  |  |  |
| 1. The side length of a square with an area of 1
 |  |  |  |  |  |  |
| 1. The side length of the side of a square with an area of 5
 |  |  |  |  |  |  |
| 1. The side length of a square with an area of 24
 |  |  |  |  |  |  |
| 1. The number half-way between 0 and -1
 |  |  |  |  |  |  |
| 1. The number that represents 7 degrees below 0.
 |  |  |  |  |  |  |