Name: Date: Period:

Dimensional Analysis

**Directions: Using the following steps, convert the following rations.**

1. **Identify what you know.**
2. **Identify the units you are trying to get to.**
3. **Using the equality in the problem write a conversion factor (fraction)**
4. **Start with the known and use the conversion factor to cancel out the unit you want to change.**
5. **Multiply the numerators across.**
6. **Multiply the denominators across.**
7. **Simplify your answer (with units)**
8. **Circle your answer.**

Example: How many hours is 84 minutes? (1 hour = 60 minutes)

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
| 84 minutes | hours | 1 hour or 60 minutes  60 minutes 1 hour |
| Solution:  84 minutes x 1 hour = 84 hours = 1.4 hours  1 60 minutes 60 | | |

Practice Problems

1. How many minutes is 1.15 hours? (1 hour=60 minutes)

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
|  |  |  |
| Solution: | | |

1. How many hours is 2.3 days? (1 day = 24 hours)

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
|  |  |  |
|  | | |

1. A marathon is 26.2 miles long. How many kilometers is a marathon?

(1 mile= 1.61kilometers)

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
|  |  |  |
|  | | |

1. How many kilometers is 100 miles? (1 mile = 1.61 kilometers)

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
|  |  |  |
|  | | |

1. Ashley is going on a trip to London. She has saved $100 in spending money. When she arrives in England, she goes to a bank to change her money into pounds. She is told that the exchange rate is 1 pound equals 1.43 US dollars. How many pounds will Ashley have?

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
|  |  |  |
|  | | |

1. In England a person’s weight is commonly given in stones. One stone equals 14 pounds. If an English friend tells you he weighs eleven stones, what is his weight in pounds?

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
|  |  |  |
|  | | |

1. How many inches are in 6 meters? (1 meter = 39.4 inches)

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
|  |  |  |
|  | | |

1. How many kilograms is 1,000,000 grams? (1 gram = 0.001 kilograms)

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
|  |  |  |
|  | | |

1. How many liters are in 10 U.S. gallons? (1 gallon = 3.79 liters)

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
|  |  |  |
|  | | |

1. How many weeks is 180 days? (7 days = 1 week)

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
|  |  |  |
|  | | |

1. How many centimeters is 12 inches? (1 inch = 2.54 cm)

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
|  |  |  |
|  | | |

1. If a person ran 6 kilometers, how many miles did they run? (1 mile = 1.61 km)

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
|  |  |  |
|  | | |

1. 60 yards is how many feet? (3 feet = 1 yard)

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
|  |  |  |
|  | | |

1. If someone orders 11 quarts of ice cream, how many pints did they order?

(1 quart = 2 pints)

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
|  |  |  |
|  | | |

1. A race is 1500 feet long, how many miles is that? (1 mile = 5280 feet)

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
|  |  |  |
|  | | |

1. Ms. Zabel has a golden retriever named Jordan. If Jordan weighs 55 pounds how many ounces does he weigh? (1 pound = 16 ounces)

|  |  |  |
| --- | --- | --- |
| Know | Looking For | Conversion Factor |
|  |  |  |
|  | | |