Name: Date: Period:

Dimensional Analysis: Day 2

**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. **From the list, use the correct equality and write a conversion factor (fraction)**
4. **Start with the known and use the conversion factor to cancel out the unit you want to change. Multiply by conversion factors until you get to the wanted unit.**
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 | days | 1 hour or 60 minutes  60 minutes 1 hour  24 hours or 1 day  1 day 24 hours |
| Solution:  84 minutes x 1 hour x 1 day = 84 days = 0.058 days  1 60 minutes 24 hours 1440 | | |

Practice Problems

1. How many inches is 3 cm? (1 in = 2.54 cm)

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

1. How many feet is 1.7 miles? (1 mi = 5280 ft)

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| Know | Looking For | Conversion Factor |
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1. How many days is 32 weeks? (1 week = 7 days)

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| Know | Looking For | Conversion Factor |
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1. How many meters is 38.4 centimeters?

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| Know | Looking For | Conversion Factor |
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1. Convert 23 seconds to minutes.

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| Know | Looking For | Conversion Factor |
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2 Part Dimensional Analysis

1. How many miles is 1000 inches? (1 mi = 5280 ft and 1 ft = 12 in)

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| Know | Looking For | Conversion Factor |
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1. How many weeks is 18 years? (1 year = 365 days and 7 days = 1 week)

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| Know | Looking For | Conversion Factor |
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1. How many kilometers is 2 centimeters? (100 cm = 1m and 1000m = 1 km)

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| Know | Looking For | Conversion Factor |
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1. Convert 7.2 miles to yards.

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| Know | Looking For | Conversion Factor |
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Multi-Step Dimensional Analysis

1. Convert 2.1 inches to millimeters.

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| Know | Looking For | Conversion Factor |
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1. How many seconds is 14 years?

|  |  |  |
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| Know | Looking For | Conversion Factor |
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1. Convert 50,800,000 millimeters to kilometers.

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

1. Who is driving faster? Allie who is driving 45 miles per hour or Adam driving at 55 kilometers per second.

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| Know | Looking For | Conversion Factor |
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1. Convert 60 miles per hour to feet per second.

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

Equalities:

60 s = 1 min 60 min = 1 hour 24 hours = 1 day

365 days = 1 year 7 days = 1 week 52 weeks = 1 year

12 months = 1 year 5280 feet = 1 mile 12 in = 1 ft

3 ft = 1 yard 2.54 cm = 1 in 1 cm = 10 mm

100 cm = 1 m 1000m = 1 km 1 mi = 1.61 km