**DIMENSIONAL ANALYSIS Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Use dimensional analysis to solve the following problems. **Show all steps** needed to convert from starting units to ending units. Round all answers to two decimals. Use any of the following relationships if needed:

|  |  |  |
| --- | --- | --- |
| 1 mile = 1.6 km | 1 m = 3.28 ft | 16 oz = 1 lb |
| 1 mile = 5280 ft | 1 oz = 28.35 g | 1 hr = 60 min |
| 1 yd = 0.91 m | 1 kg = 2.2 lbs | $1 = 0.66 £ |

1. Falcons can dive at speeds of up to 318 feet per second. Convert this speed to miles per hour.
2. A cyclist travels 56 miles in 4 hours. What is the cyclist’s speed in feet per minute?
3. Traveling at 65 miles/hour, how many feet can you travel in 22 minutes?
4. Sally Leadfoot was pulled over on her way from Denver to Boulder by an officer claiming she was speeding. The speed limit is 65 miles/hour and Sally had traveled 97 km in 102 minutes. How fast was Sally’s average speed? Does she deserve a speeding ticket?
5. Bailey found some lace at a price of 4.0 £ per meter in Ireland that she liked but was afraid she was paying too much for it. The same lace in the U.S. would sell for $5.99 per yard. Was she paying too much for it?
6. After a nice meal, perhaps you’d finish it off with a pound (1.00 lb) cake for dessert. What would the name of this cake be in grams?
7. In the Tour de France, cyclists ride 3653.6 km in 20 days. What is their rate in miles per hour?
8. A domestic pig can travel up to 15 miles per hour. What is this rate in feet per minute?
9. It’s estimated that Bill Gates makes a staggering $45 billion per year. How much does he make per second?
10. Dame Maggie wanted to purchase a new carpet for her house in England. A 6 ft ×9 ft Bokhara rug would cost $1,600. How much would this carpet cost in pounds per square meter?

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