**Metric vs. Imperial Measures**

**I ) Read the guide to some approximate conversions of imperial and metric measurements. Then, rearrange the measurements in the columns below so that they match (to the closest values):**

**Guide**

**Imperial Metric**

|  |  |
| --- | --- |
| 1. 1 inch 2. 1 foot 3. 1 yard 4. 1 mile 5. 1 ounce 6. 1 pound 7. 1 stone 8. 1 pint 9. 1 gallon | 1. about 2.5 centimetres 2. 30 centimetres 3. almost 1 metre 4. just over 1.5 kilometres 5. about 30 grams 6. about half a kilogram 7. about 6.5 kilograms 8. just over half a litre 9. about 4.5 litres |

**Rearrange:**

|  |  |
| --- | --- |
| 1. 5 yards 2. 10 pounds 3. 6 feet 4. 10 stone 5. 100 ounces 6. 24 inches | 1. 5 metres 2. 5 kilograms 3. 180 centimetres 4. 65 kilograms 5. 3 kilograms 6. 60 centimetres |

**II) Match the idioms on the left with the definitions on the right:**

**Idioms:**

1. The designer will understand if you want to make more changes—**he is every inch a** professional.

fully embodying a certain role, trait, or look.

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1. The accident frightened me **within an inch of my life**.

to an extreme degree

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1. Our neighbour is in the hospital because a burglar beat him **to within an inch of his life**

**to physically attack that person so severely that he or she is very close to death.**

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1. **Give him an inch and he'll take a mile.**

**be generous to someone and the person will demand even more.**

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1. I know you want Italian for dinner, but can’t you give an inch so that we can find a place that works for both of us?

to compromise with someone and make allowances for what they want.

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1. That product already broke! It's not **all wool and a yard wide**, that's for sure.

failing or losing by a small margin is just as bad as failing or losing by a large margin.

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1. Then the lovers throw a party, and what a party! Dancing, wine, **the whole nine yards**.

everything possible or available

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1. He's definitely the best barrister there – **by a country mile.**

**a very long way; a very large margin.**

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1. I'm feeling really overwhelmed about my research project, but I have to start somewhere, since a since **a journey of a thousand miles begins with a single step.**

**a daunting task can usually be started by doing a simple thing.**

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1. You didn't hear a word I said, did you? **You were miles away.**

to be completely unaware of what is happening or of what someone is saying, because thinking deeply about something else.

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1. We always get the largest packages of dog food-**more bounce for the ounce.**

**an increased financial return or better value**

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1. Wow, Jim really **piled on the pounds**on while he was on his sabbatical.

to put on weight quickly, especially a large or excessive amount.

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1. Be very careful about taking out loans that you can't repay right away, or you will have loan sharks coming after you **for a pound of flesh.**

an increased financial return or better value

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1. When I was caught cheating on a test, the principal **came down on me like a ton of bricks.**

**a debt or punishment, especially one that is cruel or unreasonable, that is harshly**

**insisted upon**

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**Definitions :**

1. (of an object), high quality

**III) Watch the video *Three Measurement Mishaps* and summarise briefly the second and the third mishap.**

**The second took place during a commercial flight of the company Air Canada. A malfunction from the fuel calculated system forced the crew to calculate it manually.**

**But the fuel was measured pounds and the pilots calculated it with the metric system.**

**The third mishap was in Tokyo, on a roller coater which derailed for a problem quite similar to the previous one. A part of the train was changed shortly before using the metric system instead of the imperial system. This mistake caused the train derailment.**

**IV) Read the text below and fill in the blanks with the right article (the, a/an or** **)**

## **In Depth: Mars Climate Orbiter**

Mars Climate Orbiter (MCO) was **** second probe in NASA’s Mars Surveyor program, which also included **** Mars Global Surveyor (launched in November 1996) and Mars Polar Lander (launched in January 1999).

**** Mars Climate Orbiter was designed to arrive at roughly the same time as Mars Polar Lander and to conduct simultaneous investigations of **** Mars’ atmosphere, climate and surface. Arrival in orbit was dated for Sept. 23, 1999. MCO would then reach its operational near-circular Sun-synchronous orbit at about 260 miles (421 kilometers) by Dec. 1, 1999.

**A** satellite was also designed to serve as **** communications relay for the Mars Polar Lander. After the lander’s mission (lasting three months), MCO would have performed a two-year independent mission to monitor atmospheric dust and water vapor and take daily pictures of the planet’s surface to construct **an** evolutionary map of climatic changes.

**** Scientists hoped that such information would aid in reconstructing Mars’ climatic history and provide **an** evidence of buried water reserves. After the end of its main mapping mission Jan. 15, 2001, Mars Climate Orbiter would have acted as a communications relay for future NASA missions to Mars.

After launch, the spacecraft was put into a Hohmann transfer orbit to intersect with Mars. It performed four course corrections: Dec. 21, 1998, and March 4, July 25 and Sept. 15, 1999.

At 09:00:46 UT Sept. 23, 1999, the orbiter began its Mars orbit insertion burn as planned. The spacecraft was scheduled to re-establish contact after passing behind Mars, but, unfortunately, no signals were received from the spacecraft.

**An** investigation indicated that **a** failure resulted from **a** navigational error due to **** commands from Earth being sent in English units (in this case, pound-seconds) without being converted into the metric standard (Newton-seconds).

**An** error caused the orbiter to miss its intended orbit (87 to 93 miles or 140 to 50 kilometers) and to fall into the Martian atmosphere at approximately 35 miles (57 kilometers) in altitude and to disintegrate due to **an** atmospheric stresses.