Look closely at the map and you will notice a series of blue **GRID LINES** forming squares.

Without the map in the way, they look like this.

The squares are 1000m on each side…which could be why its known as a “thousand meter grid”!
Topographic Maps
Determining Location-UTM Grid

The numbers along the bottom tell you how far EAST you are of the map’s **FALSE ORIGIN** (remember that?) The number is called an **EASTING**.

The numbers along the side tell you how far NORTH you are of the map’s **FALSE ORIGIN**. The number is called a **NORTHING**.

You **ALWAYS** find the **EASTING** and then the **NORTHING**. Think of going into a house…in the door, up the stairs,,,you can’t go up the stairs first!
Topographic Maps
Determining Location-UTM Grid

Using the four numbers provided by the EASTING and NORTHING you can find a general location (GRID REFERENCE)

Remember, the square will be 1 km x 1 km!

A GRID REFERENCE always refers to the lower left corner of the box.
Topographic Maps
Determining Location-UTM Grid

Then find the NORTHING… 03

First find the EASTING… 42
4203 describes the location of the lower left hand corner of the grid square containing the “Y” intersection.

(Remember… in the door, up the stairs.)
A four figure **GRID REFERENCE** locates objects inside a 1km x 1km box. Normally more precision is needed.

To do this you can subdivide the box into smaller units.

You can “eyeball it” or use a device called a **ROMER**.

**A ROMER** is a transparent grid that fits over the grid on the map and breaks the “big square” into 100 smaller squares.
A six figure **GRID REFERENCE** puts you inside a 100 m x 100 m box, which is generally good enough for land navigation.

To determine a six figure **GRID REFERENCE** lay the **ROMER** over the square you are interested in.
Topographic Maps
Determining Location-UTM Grid

Use the same **EASTING** that you did for the four figure **GRID REFERENCE**.

Add a third digit to describe how many 100m squares you are from the **EASTING** (in this case 3).

The **42** of the four figure **GRID REFERENCE** becomes **423** in the six figure **GRID REFERENCE**.
Repeat the process for the **NORTHING**.

Putting the two together you get:

```
423036
```

Notice that there are no spaces, nor punctuation or symbols of any kind. **Simply six digits!**
To make navigation even more accurate, subdivide each square on the ROMER into 10 smaller units...you will get an 8 DIGIT GRID REFERENCE.

For example, the building just North of the “Y” intersection is located at:

42380365
Topographic Maps
Determining Location-UTM Grid

4. Figure GRID REFERENCE = 1000m box good for general location
6. Figure GRID REFERENCE = 100m box good for specific area
8. Figure GRID REFERENCE = 10m box good for specific object
12. Figure GRID REFERENCE = 1m box provided by GPS