

## Explaining regularities

<http://topdrawer.aamt.edu.au/Patterns/Big-ideas/Mathematical-patterns-are-regular/Find-the-regularity>



### Description

A person has left a track of footprints in the sand, forming a repeating left-right zig-zag pattern. The distance between successive footprints is approximately constant.

### Explanation

The person was walking at a constant speed and not limping. A person's track of footprints can also be viewed as two separate, parallel tracks: one made by their right foot and one by their left foot. These two tracks are parallel because people's legs are a fixed distance apart. If the person is walking at a constant speed, the footprints in each track will also be equally spaced even if they are limping.





### Description

The two sides of the ladder are the same length. The rungs of the ladder are also all the same length and are equally spaced.

### Explanation

The two sides of the ladder are the same length so that it can stand upright. The rungs are all the same length\* because the same person has to fit at different places on the ladder. The rungs are equally spaced because a person would expect to make equal steps up the ladder.

\* In shorter ladders, the rungs are often made longer at the bottom than the top. This adds to the stability of the ladder.



### Description

Jane was surprised that the teacher could not see the pattern in her drawing. She said:

"My pattern—can't you see it's a system? Circles, then stars, then wheels. The stars are in the wheels; the wheels are in the circles. I did them four times each, one thing at a time in eight different colours ( $3 \times 4 \times 8$  colours). There must be the same number of circles, stars, wheels."