

The mill pond



The mill pond is 2 metres deep in the middle and 1 metre deep at the sides.

What is the **average** depth of the pond? (*1 metre, 1.5 metres, 2 metres or 2.5 metres.*)

How far do you think it is to the light in the middle of the pond? (*100 metres, 10 metres, 20 metres, 1 metre, 50 metres*)

Maths at the Mill

A mathematical trail around Sarehole Mill



Name

Introduction

This book will show you places in the Mill where you can practise your maths skills.



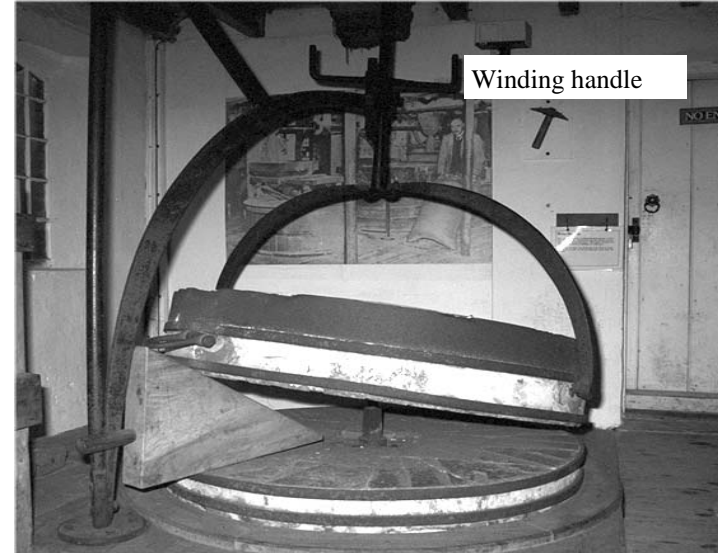
The outside of the mill

The mill is not just one building, it is two stuck together.
What letter shape does the mill's **plan** make on the ground?
(An 'E' shape, an 'F' shape an 'L' shape a 'D' shape)

A chimney was built in the 1850s for the steam engine. How many metres high do you think it is?

(6 centimetres, 6 metres, 16 metres, 30 metres, 160 metres?)

The jack



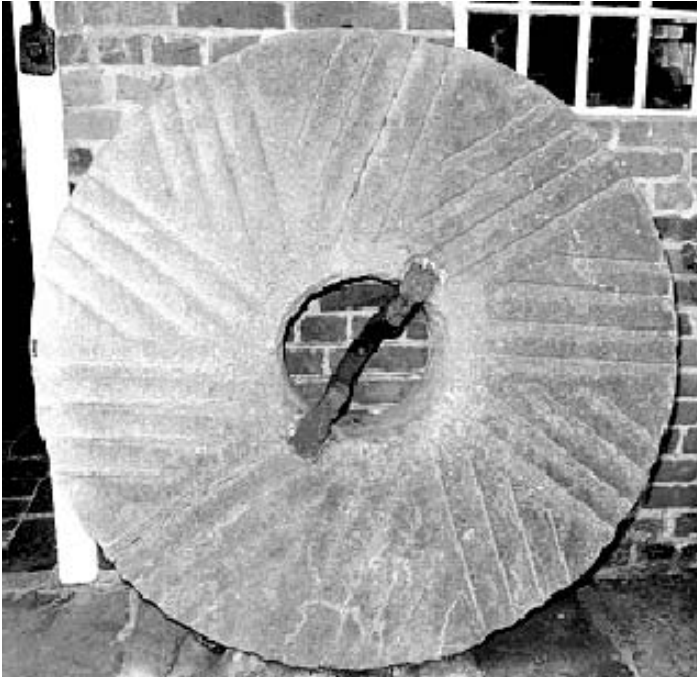
The jack is used to lift up the heavy mill stone so that the grooves on the stones that grind up the corn into flour can be sharpened. When the winding handle is turned around once, the stone is lifted up a **distance** of 1 centimetre.

How many turns does the miller have to make to lift up the stone 15 centimetres?

(1 turn, 5 turns, 15 turns 150 turns)

What shape are the wedges under the stone?

Mill Stones



The mill stones are about 10 times as heavy as you are. Which of these **estimates** is closest to its weight?

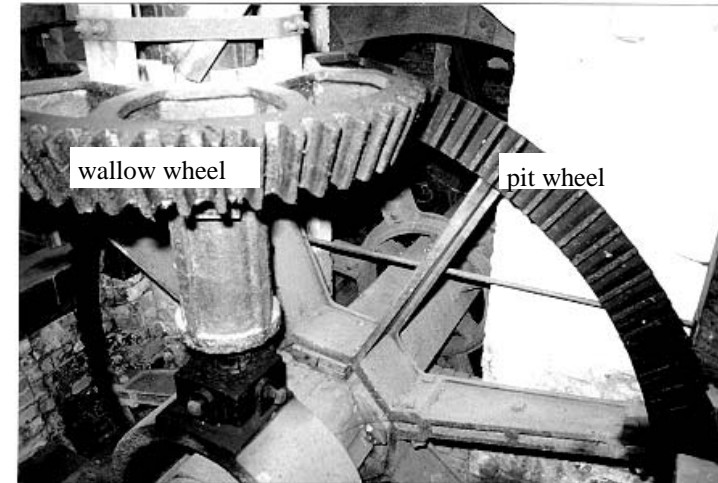
(3 kilograms, 30 kilograms, 300 kilograms, 3 tonnes)

A mill stone has to spin round at 120 turns a minute to work properly. How many times a second is this?

What is the technical word for a complete turn

(It begins with an 'r')

The Gears



The gears connect the water wheel to the mill stones.

They also make the stones go round faster.

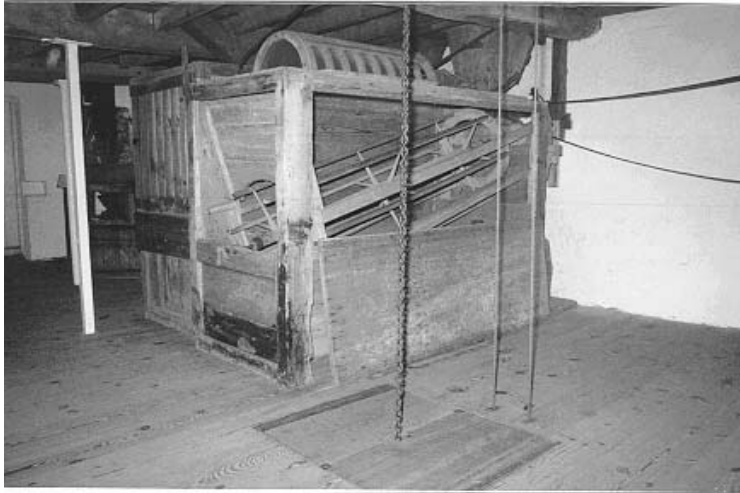
If the spur wheel has 150 teeth and the smaller wallow wheel has 25 teeth, how many times does the wallow wheel go round when the pit wheel turns once?

(2 times, 4 times, 6 times, 10 times)

What kind of sum did you do to get the answer?

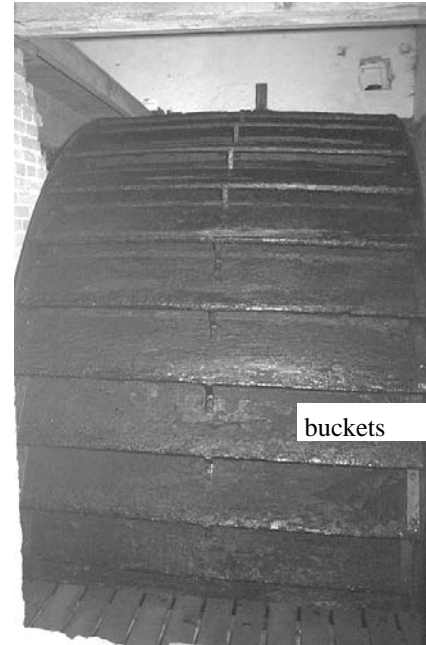
(Adding, subtracting, multiplying or dividing.)

The Boulting Machine



The Boulting Machine sieves the bran out of the flour. It spins round like the drum of a washing machine. The energy to spin it comes from the water wheel along a **pulley** and a **belt**. If the big pulley that drives the machine is 3 metres around the edge and the smaller pulley on the back of the machine is 1 metre around the edge, (**circumference**) how many times will the smaller pulley go round when the bigger pulley goes round once?
(10 times, 4 times, 3 times, 2 times)

The water wheel



The water wheel has wooden buckets all around the edge (**circumference**) that catch the water as it comes out of the sluice gate. Each bucket holds 50 litres of water. The water wheel has 36 buckets.

How much water does it

take to turn it all the way around?

(360 litres, 1800 litres, 200 litres, 3600 litres)

The water wheel is very big. Which of these measurements is a correct **estimate** for its **diameter**? (distance across the centre)

(10 metres, 4 metres 50 centimetres, 50 metres?)

The water wheel is shaped like an enormous toilet roll! What is this shape called in Maths? (It begins with a letter 'c')