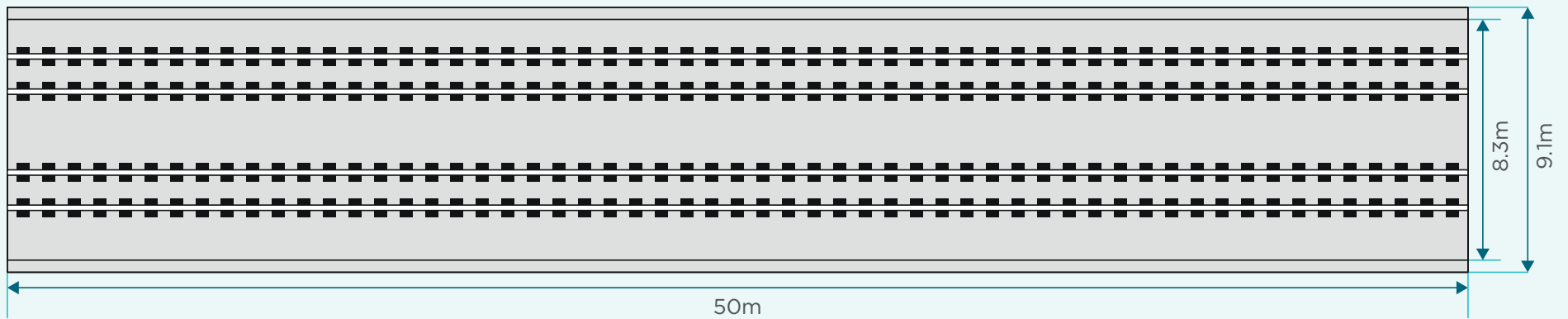
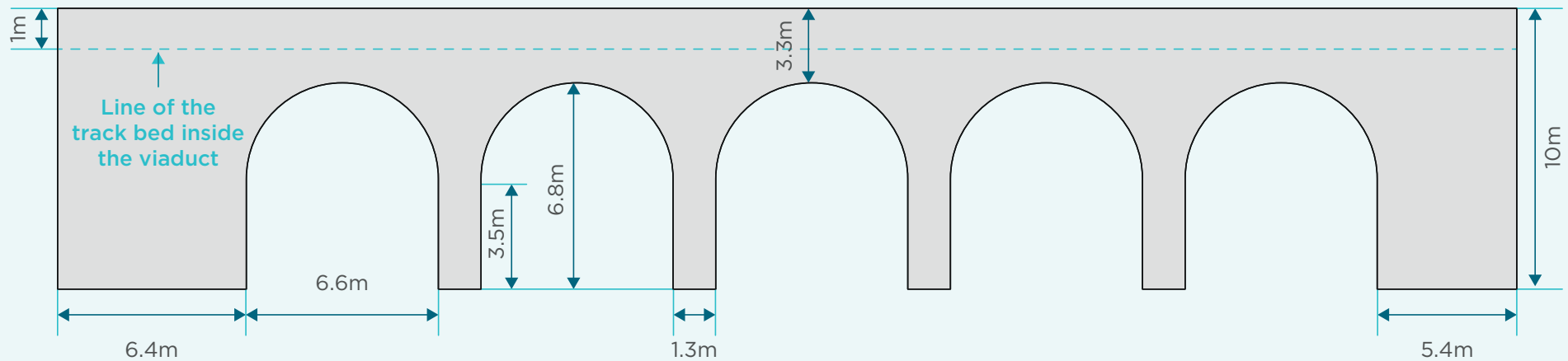


# Sizes and shapes on the railway Page 1

Plan view of the viaduct



Side view of the viaduct



# Sizes and shapes on the railway Page 2

As part of the railway a viaduct had to be built to enable it to cross over the River Maun. It was made of stone and had many different shapes. Now we are going to look at those shapes and sizes.

A. Looking at the plan view of the viaduct, work out the following in **square metres**:

1. The perimeter around the outside of the viaduct:  $50 + 50 + 9.1 + 9.1 =$

2. The total area covered by the viaduct:  $50 \times 9.1 =$

3. The total area of the inside of the viaduct:  $50 \times 8.3 =$

B. Looking at the side view of the viaduct, work out the following in **square metres**:

1. Work out the perimeter around the whole viaduct:  $50 + 50 + 10 + 10 =$

2. The perimeter around 1 arch:  $(6.6 \times 3.142) \div 2 + (2 \times 3.5) + 6.6 =$

3. Work out the area of 1 arch:  $(3.3 \times 3.3 \times 3.142) \div 2 + (3.5 \times 6.6) =$

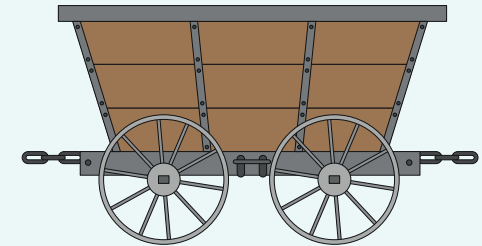
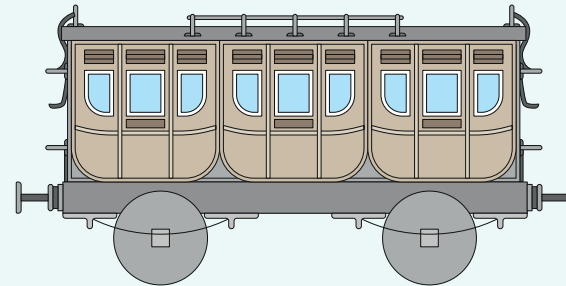
4. Work out the area of the viaduct without the arches:  $(50 \times 10) - (5 \times 40.2) =$

# Sizes and shapes on the railway Page 3

C. Looking at both views of the viaduct which shapes are symmetrical?

D. Looking at both drawings of the viaduct what parts are parallel?

E. The following is a drawing of an individual rail from 1819; Is it symmetrical?



F. Above is a sketch of a rail coach from 1848 and a wagon from 1826; They are symmetrical; draw a line through the centre of symmetry.

G. Looking at the coach:

1. How many squares can you see?

2. How many circles can you see?

H. Looking at the wagon:

1. How many circles can you see?

2. What parallel parts can you see?