

Free-Standing Mathematics Qualification
June 2007
Intermediate Level



USING ALGEBRA, FUNCTIONS AND GRAPHS 6988/2PM
Unit 8

PRELIMINARY MATERIAL

DATA SHEET

**To be issued to candidates between Wednesday 2 May
and Wednesday 9 May 2007**

REMINDER TO CANDIDATES

YOU MUST **NOT** BRING THIS DATA SHEET
WITH YOU WHEN YOU SIT THE EXAMINATION.
A CLEAN COPY WILL BE MADE AVAILABLE.

Walking distances

An Education Authority has a table that shows the distances from a number of housing areas to one of its local schools.

The table shows both the straight-line distances that have been calculated using a map of the district and the actual walking distances.

Housing area	A	B	C	D	E	F	G
Straight-line distance (s kilometres)	0.9	2	2.5	3	4	5	6
Walking distance (w kilometres)	1.2	2.6	3.3	4	5.1	6.6	7.7

Earth and Mercury

Information relating to Earth and Mercury is given in the table below.

	Earth	Mercury
Mass in kilograms	5.98×10^{24}	3.59×10^{23}
Atmospheric pressure in newtons per square metre	1.01×10^5	2×10^{-8}
Distance from the Sun in kilometres	1.5×10^8	5.81×10^7
Diameter in kilometres	1.3×10^4	4.9×10^3

Farm sale

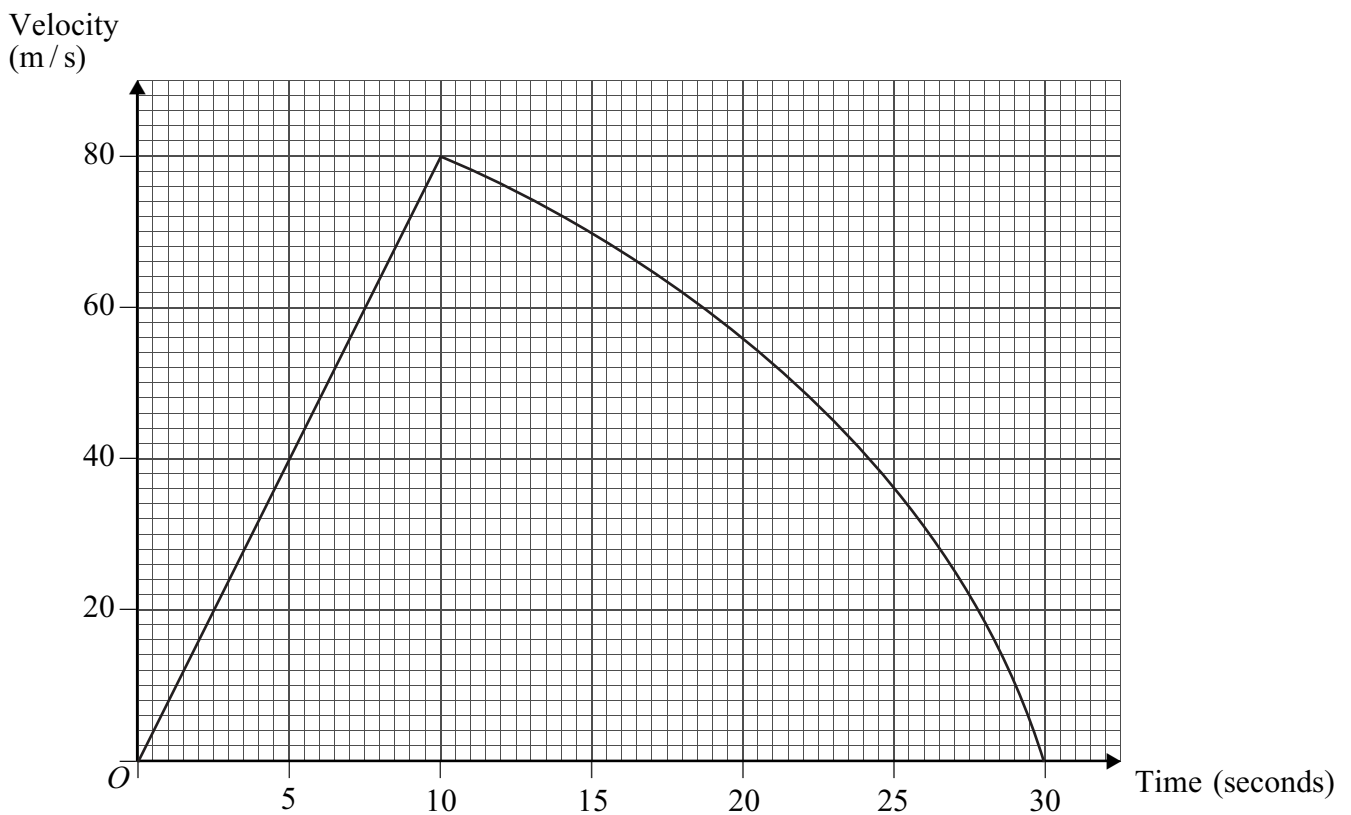
At a farm sale, a farmer can buy gates and barn doors.

For example, 6 gates and 5 barn doors cost £ 580 .

Racing car

The velocity–time graph for a racing car over a period of 30 seconds is shown.

The car reaches a maximum velocity of 80 metres per second.

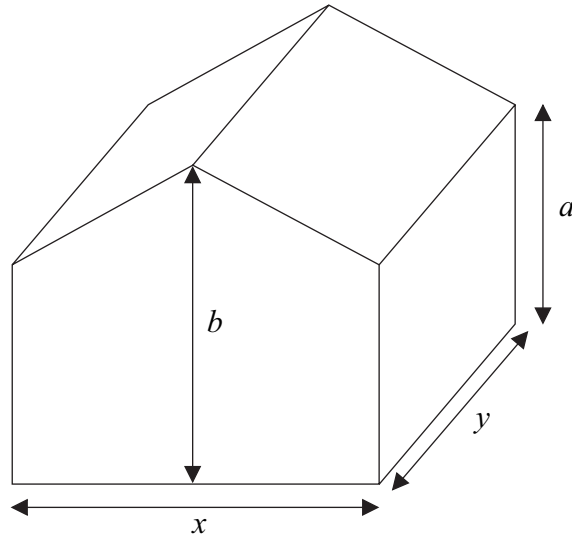


Turn over

Turn over ►

Greenhouse

This diagram represents a greenhouse.



The volume, V , of the greenhouse is given by the formula

$$V = \frac{1}{2}xy(a + b)$$

Tadpoles

A biologist records the number of tadpoles in a small pond each day.

The table below shows the results found.

Day (t)	1	2	3	4
Number of tadpoles (n)	346	478	662	916

END OF DATA SHEET