GCSE Grade 6

Maths Booklet 4

Paper 2H
Calculator

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1 (a) Simplify $\left(\frac{1}{m^2}\right)^0$

.....

(1)

(b) Simplify $\frac{8(x-4)}{(x-4)^2}$

.....

(1)

(c) Simplify $(3n^4w^2)^3$

.....

(2)

(Total for Question 1 is 4 marks)

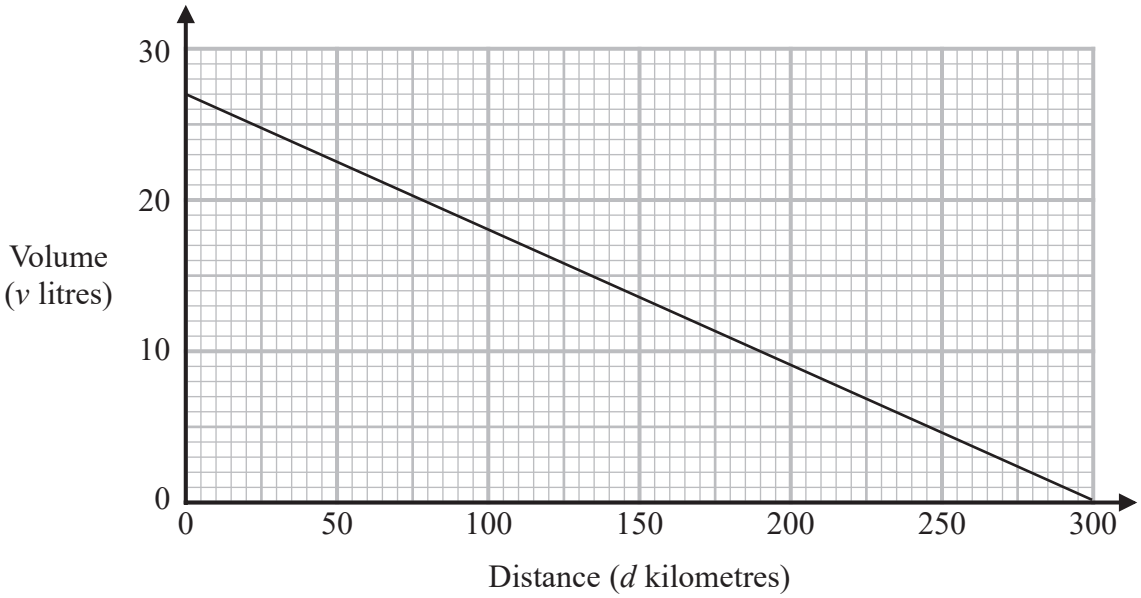
2 Jack is in a restaurant.
There are 5 starters, 8 main courses and some desserts on the menu.

Jack is going to choose one starter, one main course and one dessert.
He says there are 240 ways that he can choose his starter, his main course and his dessert.

Could Jack be correct?
You must show how you get your answer.

(Total for Question 2 is 2 marks)

3 The graph gives information about the volume, v litres, of petrol in the tank of Jim's car after it has travelled a distance of d kilometres.



(a) Find the gradient of the graph.

.....

(2)

(b) Interpret what the gradient of the graph represents.

.....

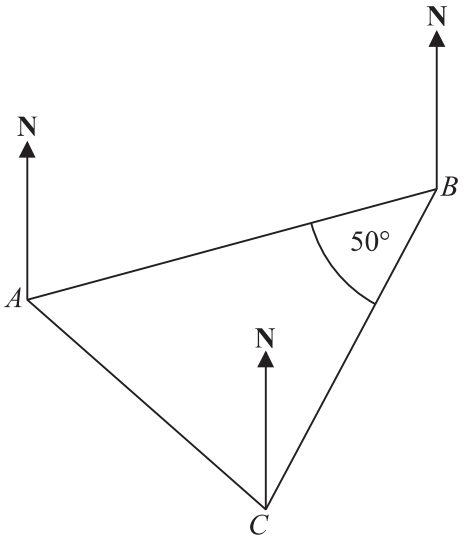
.....

.....

(1)

(Total for Question 3 is 3 marks)

4 The diagram shows the positions of three points, A, B and C, on a map.



The bearing of B from A is 070°

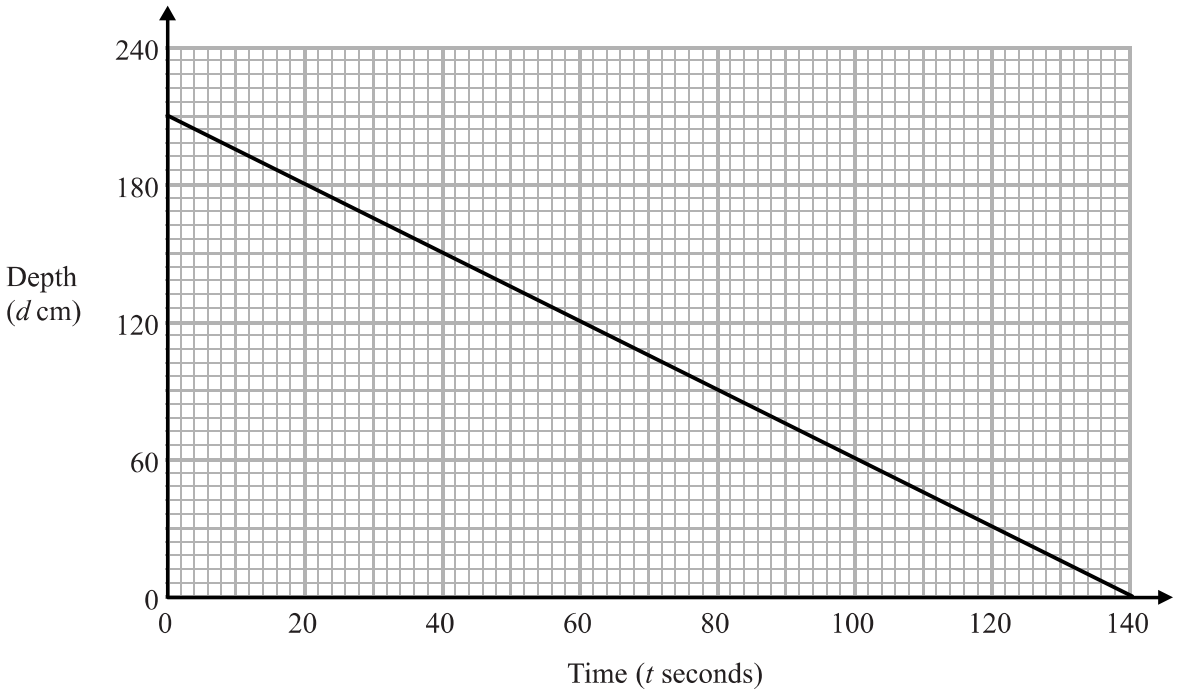
Angle ABC is 50°
$AB = CB$

Work out the bearing of C from A.

.....°

(Total for Question 4 is 3 marks)

5 The graph shows the depth, d cm, of water in a tank after t seconds.



(a) Find the gradient of this graph.

.....

(2)

(b) Explain what this gradient represents.

.....

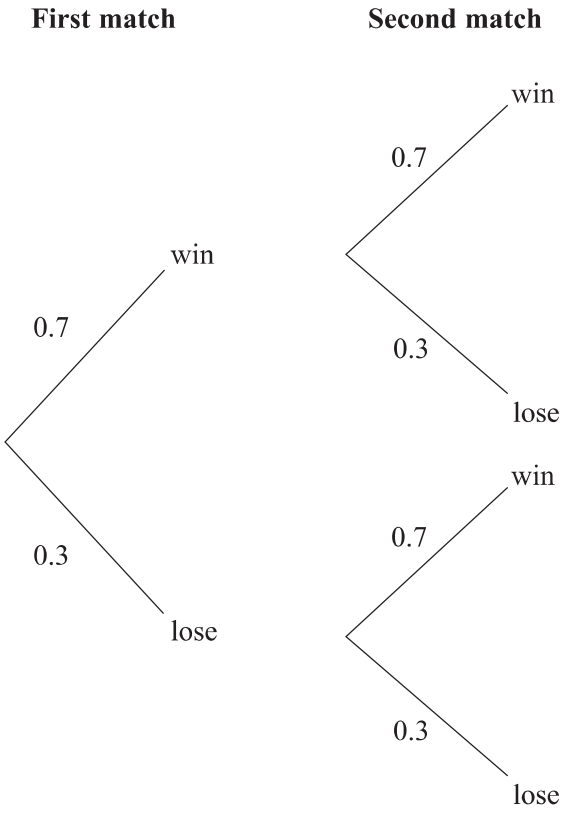
.....

(1)

(Total for Question 5 is 3 marks)

6 Finlay plays two tennis matches.

The probability that he will win a match and the probability that he will lose a match are shown in the probability tree diagram.



(a) Work out the probability that Finlay wins both matches.

.....

(2)

(b) Work out the probability that Finlay loses at least one match.

.....

(2)

(Total for Question 6 is 4 marks)

7 (a) Find the reciprocal of 2.5

.....

(1)

(b) Work out $\sqrt[3]{\dfrac{4.3 \times \tan 39^\circ}{23.4 - 6.06}}$

Give your answer correct to 3 significant figures.

.....

(2)

(Total for Question 7 is 3 marks)

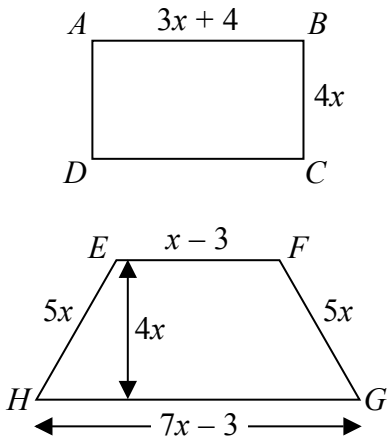
8 Show that

$$(3x - 1)(x + 5)(4x - 3) = 12x^3 + 47x^2 - 62x + 15$$

for all values of x.

(Total of Question 8 is 3 marks)

9 *ABCD* is a rectangle.
EFGH is a trapezium.



All measurements are in centimetres.
The perimeters of these two shapes are the same.

Work out the area of the rectangle.

..... cm^2

(Total for Question 9 is 5 marks)