elevise

Edexcel GCSE Maths Higher

Paper 3 June 2019

Calculator

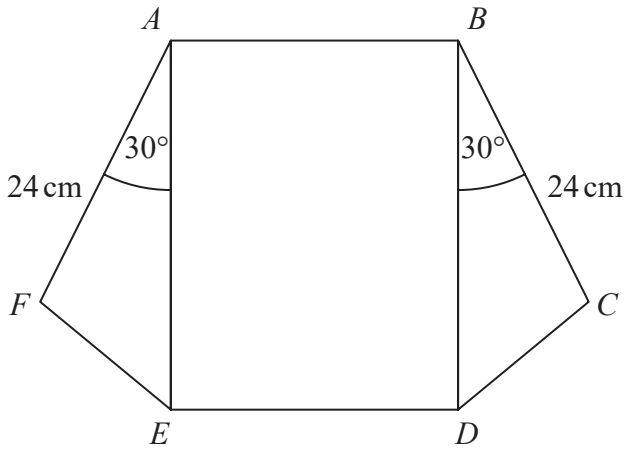
Second Half

40 Marks

Past Paper Website Home

www.elevise.co.uk

14 The diagram shows a rectangle, *ABDE*, and two congruent triangles, *AFE* and *BCD*.



area of rectangle *ABDE* = area of triangle *AFE* + area of triangle *BCD*

$$AB : AE = 1 : 3$$

Work out the length of *AE*.

KZ14A

..... cm

(Total for Question 14 is 4 marks)

15 The graph of the curve C with equation $y = f(x)$ is transformed to give the graph of the curve S with equation $y = f(-x) - 3$

The point on C with coordinates (7, 2) is mapped to the point Q on S.

Find the coordinates of Q.

KZ15A

(..... , ...)

(Total for Question 15 is 2 marks)

16 Here are the first six terms of a quadratic sequence.

−1 5 15 29 47 69

Find an expression, in terms of n, for the nth term of this sequence.

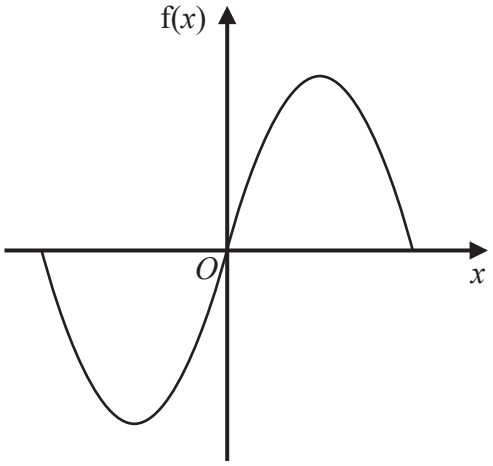
KZ16A

.....

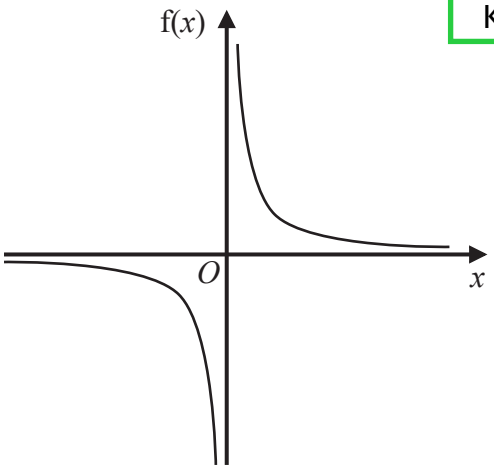
(Total for Question 16 is 3 marks)

17 Here are four graphs.

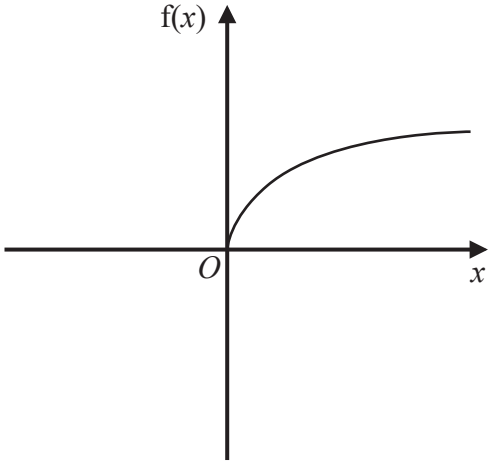
Graph A



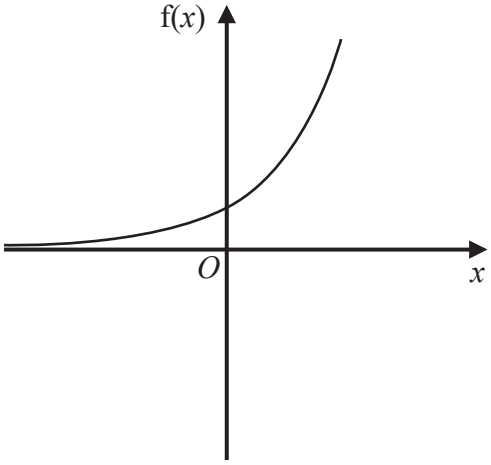
Graph B



Graph C



Graph D



The graphs represent four different types of function f.

Match each description of the function in the table to the letter of its graph.

Description of function	**Graph**
f(x) is inversely proportional to x	
f(x) is a trigonometrical function	
f(x) is an exponential function	
f(x) is directly proportional to $\sqrt{x}$	

(Total for Question 17 is 2 marks)

18 (a) Show that $(2x + 1)(x + 3)(3x + 7)$ can be written in the form $ax^3 + bx^2 + cx + d$ where a, b, c and d are integers.

KZ18A

(3)

(b) Solve $(1 - x)^2 < \frac{9}{25}$

(3)

(Total for Question 18 is 6 marks)

19 $D = \dfrac{u^2}{2a}$

KZ19A

$u = 26.2$ correct to 3 significant figures

$a = 4.3$ correct to 2 significant figures

(a) Calculate the upper bound for the value of D.
Give your answer correct to 6 significant figures.
You must show all your working.

.....

(3)

The lower bound for the value of D is 78.6003 correct to 6 significant figures.

(b) By considering bounds, write down the value of D to a suitable degree of accuracy.
You must give a reason for your answer.

.....

.....

(2)

(Total for Question 19 is 5 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

20 Solve algebraically the simultaneous equations

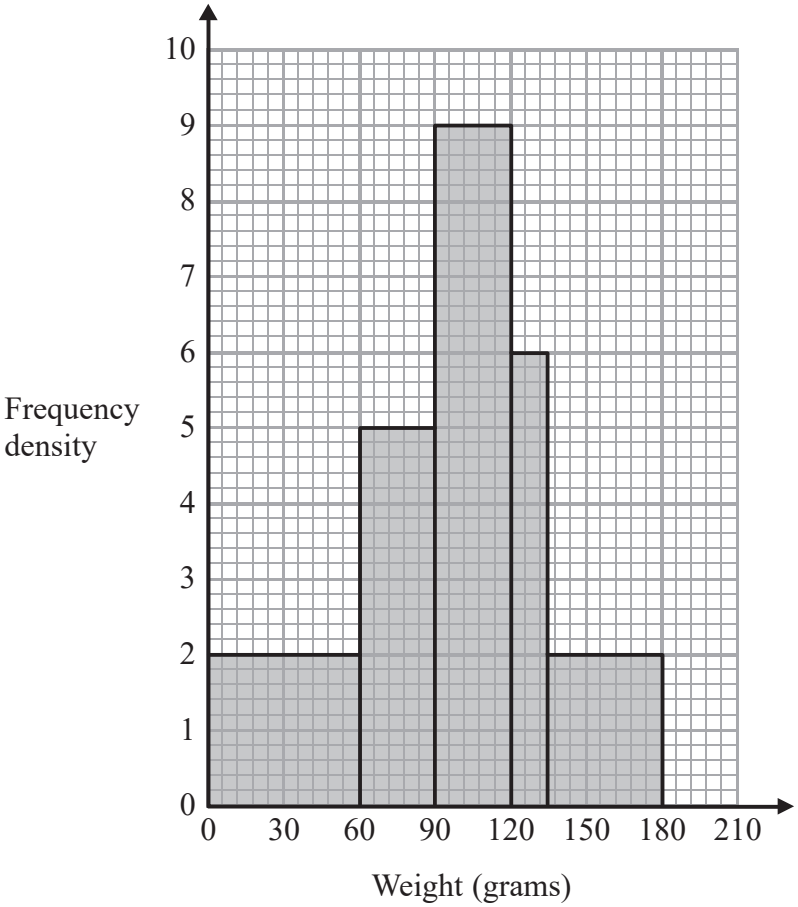
$$x^2 - 4y^2 = 9$$
$$3x + 4y = 7$$

KZ20A

.....

(Total for Question 20 is 5 marks)

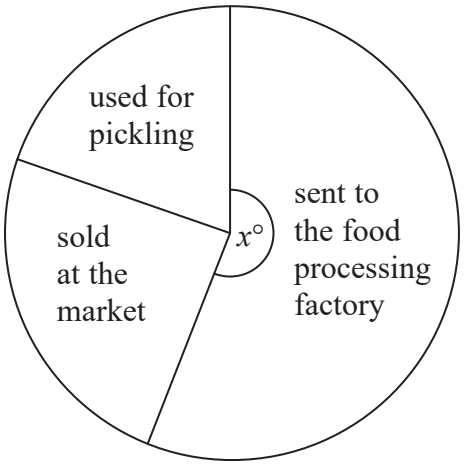
21 The histogram gives information about the distribution of the weights of some onions grown by a farmer.



KZ21A

Onions less than 60 grams in weight are used for pickling.
Onions greater than 120 grams in weight are sold at the market.
The rest of the onions are sent to a food processing factory.

A pie chart is drawn using the information opposite to show what the farmer does with the onions he grows.



The angle of the sector for the onions sent to the food processing factory is $x°$.

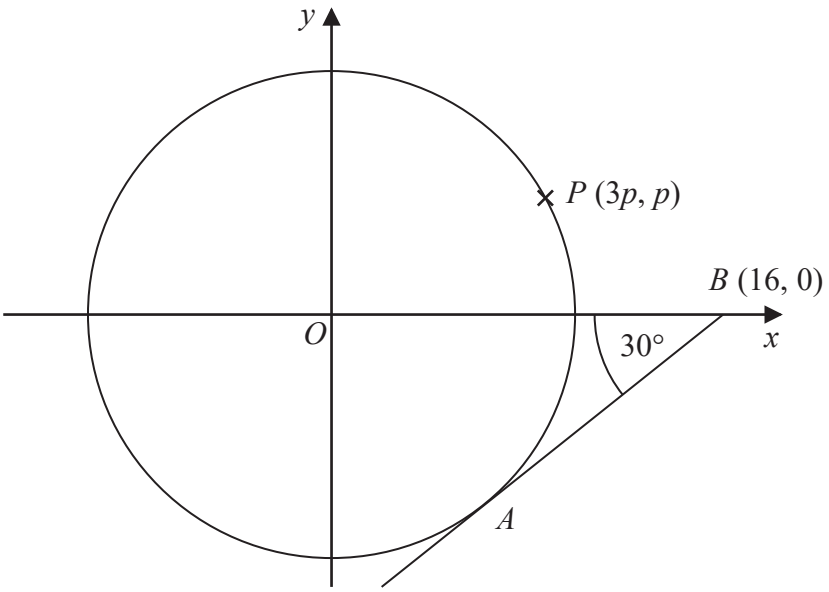
Work out the value of x.

$x =$ .....

(Total for Question 21 is 4 marks)

22 The diagram shows a circle, centre O.

KZ22A



AB is the tangent to the circle at the point A.
Angle $OBA = 30°$

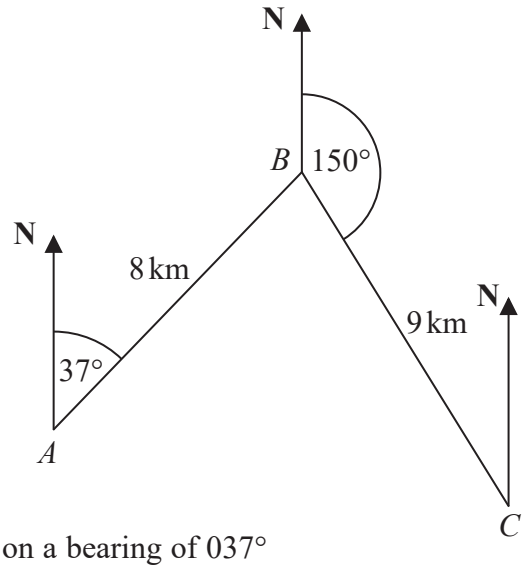
Point B has coordinates (16, 0)
Point P has coordinates $(3p, p)$

Find the value of p.
Give your answer correct to 1 decimal place.
You must show all your working.

$p =$ .....

(Total for Question 22 is 4 marks)

23 The diagram shows the positions of three towns, Acton (A), Barston (B) and Chorlton (C).



Barston is 8 km from Acton on a bearing of 037°
Chorlton is 9 km from Barston on a bearing of 150°

Find the bearing of Chorlton from Acton.
Give your answer correct to 1 decimal place.
You must show all your working.

KZ23A

.....°

(Total for Question 23 is 5 marks)

TOTAL FOR PAPER IS 80 MARKS