

12 Astrid wants to buy some oil.  
She can buy the oil from either Dane Oil or Arctic Oil.

Here is information about the price that each company will charge Astrid.

Dane Oil	Arctic Oil
$(4.2 \times 10^5)$ litres for 2 500 000 Krone	$(8.6 \times 10^5)$ litres for 770 000 Dollars

Astrid wants to get the better value for money for the oil.

$$1 \text{ Dollar} = 6.57 \text{ Krone}$$

From which company should she buy her oil, Dane Oil or Arctic Oil?  
You must show your working.

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 12 is 4 marks)



13

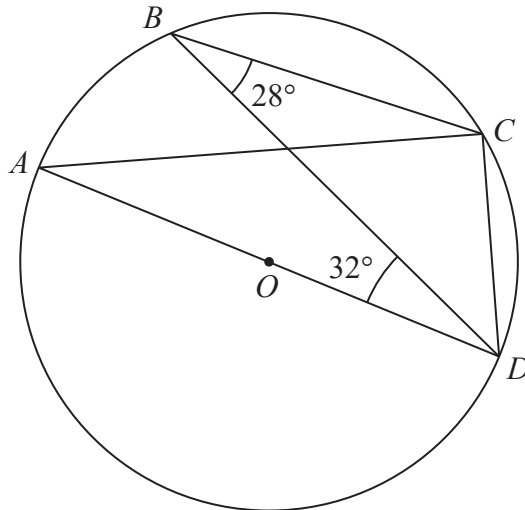


Diagram NOT accurately drawn

$A$ ,  $B$ ,  $C$  and  $D$  are points on a circle, centre  $O$ .  
 $AOD$  is a diameter of the circle.

Angle  $CBD = 28^\circ$   
 Angle  $BDA = 32^\circ$

Find the size of angle  $BDC$ .  
 Give a reason for each stage of your working.

.....  
 o

(Total for Question 13 is 4 marks)

DO NOT WRITE IN THIS AREA

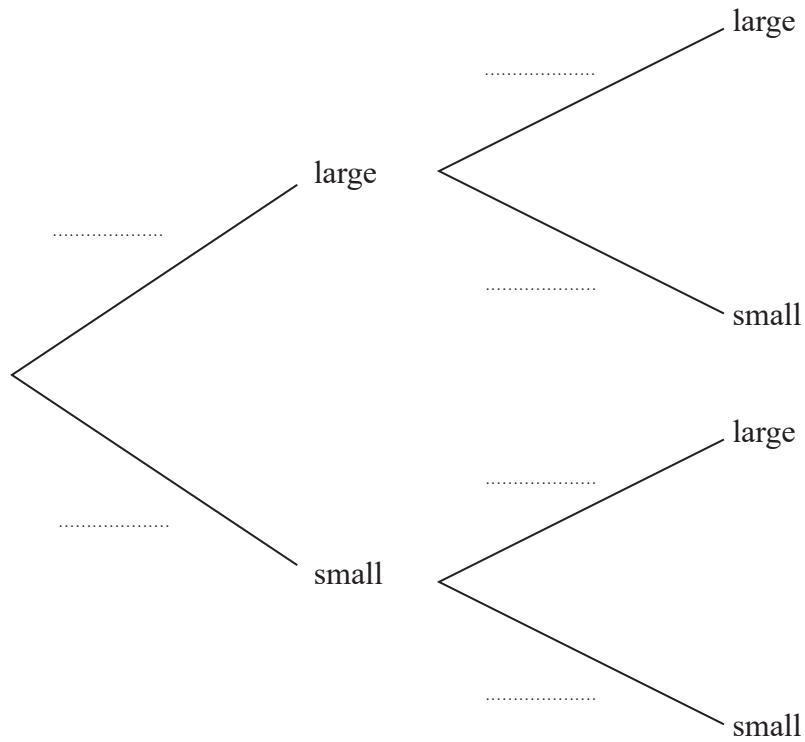


14 There are 20 glasses in a cupboard.

13 of the glasses are large  
7 of the glasses are small

Roberto takes at random two glasses from the cupboard.

(a) Complete the probability tree diagram.



(2)

(b) Work out the probability that Roberto takes two small glasses.

.....  
(2)

(Total for Question 14 is 4 marks)

DO NOT WRITE IN THIS AREA

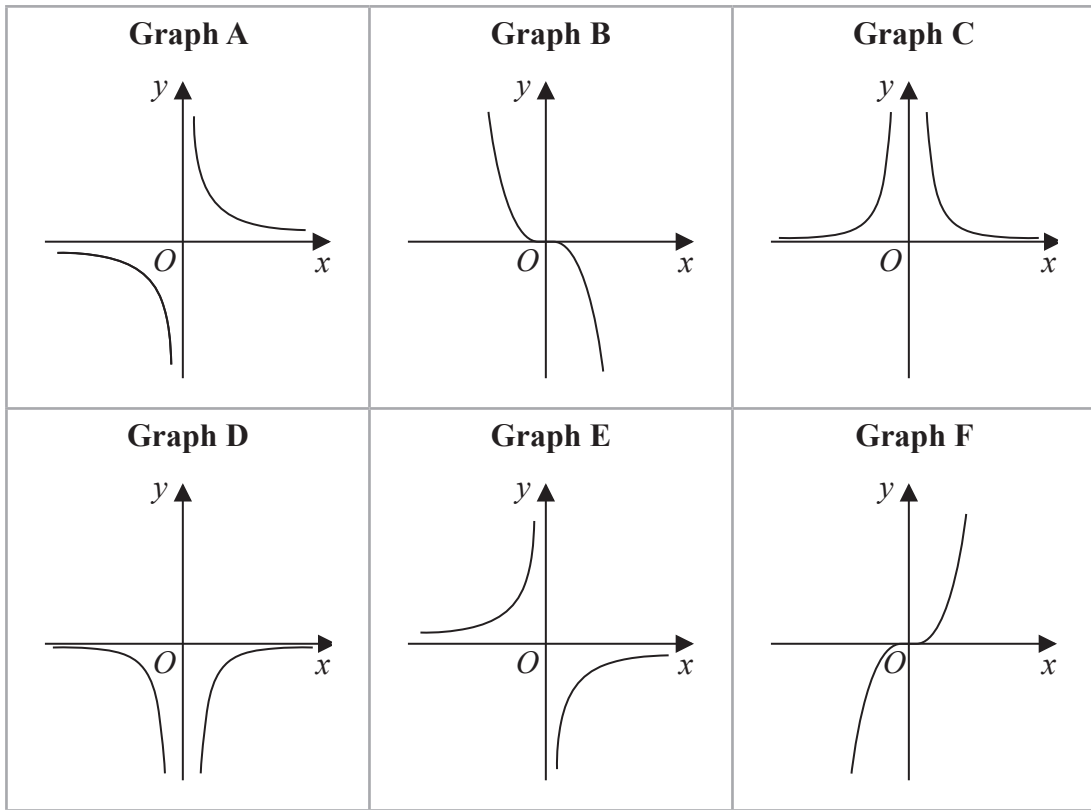
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



DO NOT WRITE IN THIS AREA

15 Here are six graphs.



Complete the table below with the letter of the graph that could represent each given equation.

Write your answers on the dotted lines.

Equation	Graph
$y = \frac{2}{x^2}$	.....
$y = -\frac{1}{2}x^3$	.....
$y = -\frac{5}{x}$	.....

(Total for Question 15 is 3 marks)



16 Make  $x$  the subject of  $y = \sqrt{\frac{x+1}{x-4}}$

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 16 is 4 marks)



17 Prove that the difference between two consecutive square numbers is always an odd number.  
Show clear algebraic working.

DO NOT WRITE IN THIS AREA

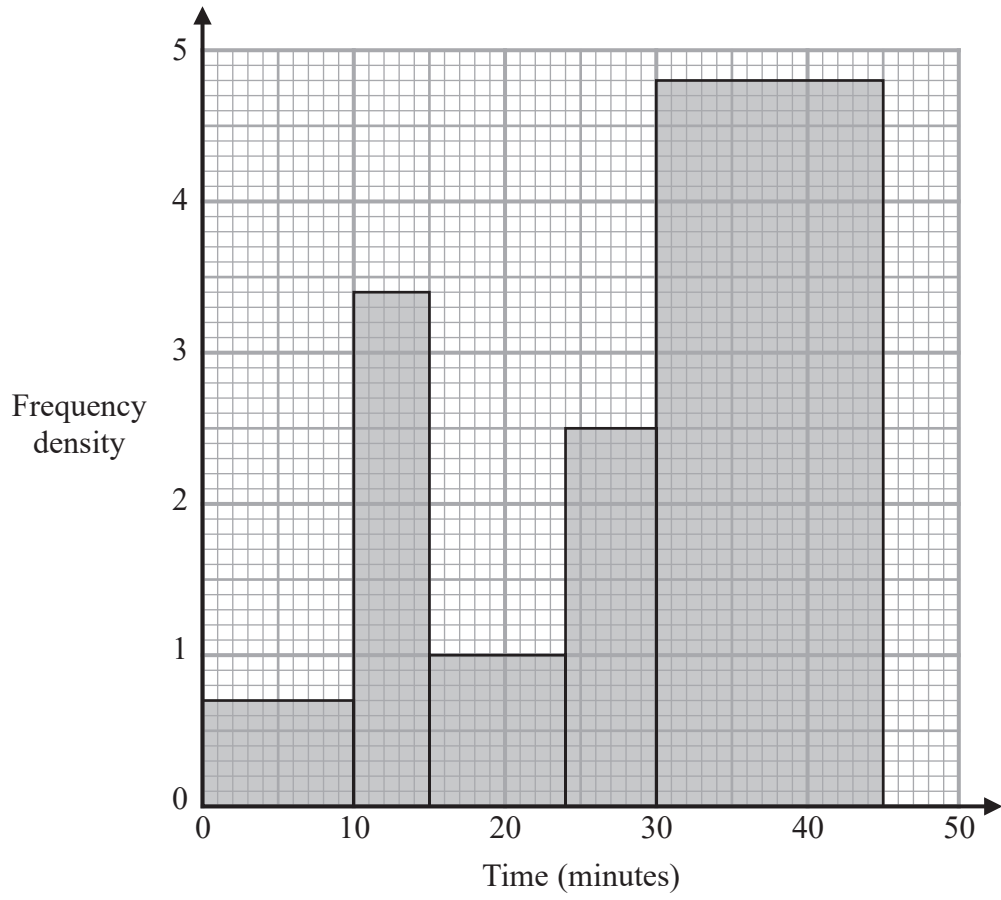
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 17 is 3 marks)



18 The histogram gives information about the times, in minutes, that some customers spent in a supermarket.



(a) Work out an estimate for the proportion of these customers who spent between 17 minutes and 35 minutes in the supermarket.

(3)



NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

One of the customers is selected at random.

Given that this customer had spent more than 30 minutes in the supermarket,

(b) find the probability that this customer spent more than 36 minutes in the supermarket.

.....  
(2)

(Total for Question 18 is 5 marks)

19 (a) Write down an equation of a line that is parallel to the line with equation  $y = 7 - 4x$

.....  
(1)

The line L passes through the points with coordinates  $(-3, 1)$  and  $(2, -2)$

(b) Find an equation of the line that is perpendicular to L and passes through the point with coordinates  $(-6, 4)$

Give your answer in the form  $ax + by + c = 0$  where  $a$ ,  $b$  and  $c$  are integers.

.....  
(4)

(Total for Question 19 is 5 marks)

