This is a Class 1 exam

Lebanon Evangelical School
for Boys and Girls
Loueizeh - Baabda

Stage Exam 02

26MAR2025

Do NOT write in this box. Your MARK will be placed here.

Subject :	A Level : Maths M0
Class :	11A12A
Teacher :	Mr. Farhan Batch
Duration :	1 hour

Calculators will be ALLOWED

You are to answer the questions to this exam on : This exam paper

Your name :		*Time taken to complete exam*
Your Class :		
Exam Room :		
How many sheets, including cover sheet :		

- Do not open this paper until the teacher in charge instructs you to do so.
- The most important thing to remember in taking an exam is NEVER PANIC.
- If you are caught cheating in this exam, you will be awarded zero for ALL exams that are taken on this day.

Answer ALL questions.
Write your answers in the spaces provided.
You must write down all the stages in your working.

(1) Work out the difference between the largest share and the smallest share when 3450 yen is divided in the ratios 2: 6: 7

..... yen
(Total for Question 1 is 3 marks)

---

(2) Gopal is paid £20 000 each month. Jamuna is paid £19 200 each month.
Gopal and Jamuna are both given an increase in their monthly pay.
After the increase, they are both paid the same amount each month.
Gopal was given an increase of 8%
Work out the percentage increase that Jamuna was given.

.....%
(Total for Question 2 is 4 marks)

---

(3) The diagram shows two cylinders, A and B

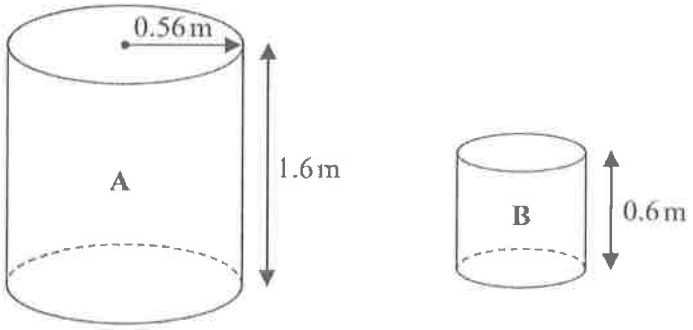


Diagram **NOT** accurately drawn

Cylinder A has height 1.6 m and radius 0.56 m.
Work out the curved surface area of cylinder A. Give your answer in m^2 correct to 3 significant figures. (curved surface of a cylinder $S = 2\pi rh$)

..... m^2
(2)

Cylinder B is mathematically similar to cylinder A. The height of cylinder B is 0.6 m.
(b) Work out the radius of cylinder B.

..... m
(2)
(Total for Question 4 is 4 marks)

(4) Berna makes candles.

She has 9.2 kilograms of wax and uses it all to make candles. Each candle Berna makes uses 230 grams of wax. Berna sells $\frac{2}{5}$ of the candles for £14 each. She then reduces this price by 25% and sells the rest of the candles.

Work out the total amount of money Berna gets by selling all the candles she made.

£.....

(Total for Question 4 is 4 marks)

---

(5) Solve $\frac{8x-3}{5} = x + 3$ Show clear algebraic working.

x =.....

(Total for Question 5 is 3 marks)

---

(6) Emily flew by plane from Dubai to Paris.
The flight time was 4 hours 56 minutes.
The average speed of the plane was 660 kilometers per hour.
Work out the distance the plane flew.

x =.....

(Total for Question 6 is 3 marks)

---

(7) From point A, Samir walks 250 m due east to point B. From B, he then walks 170 m due south to point C. Work out the length of AC. Give your answer correct to 3 significant figures.

.....meters

(Total for Question 7 is 3 marks)

---

(8) Here is an empty pool in the shape of a cuboid

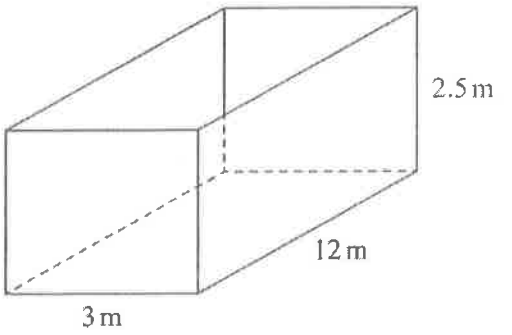


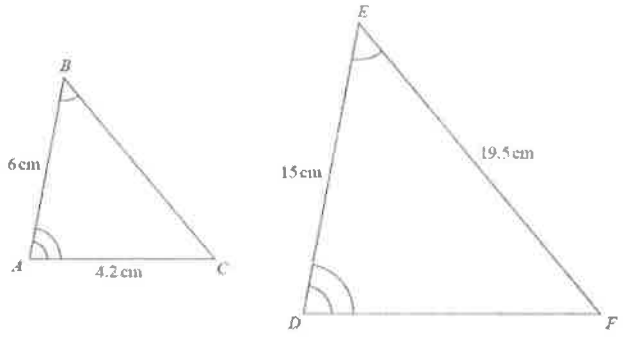
Diagram **NOT** accurately drawn

the width of the pool is 3 m.
The length of the pool is 12 m.
The top of the pool is 2.5 m above the base of the pool
The level of the surface of the water will be 40 cm below the top of the pool.
Water flows into the pool at 450 liters per minute.
1 m^3 = 1000 liter
How long will it take to fill the pool to 40 cm below the top of the pool?
Give your answer in hours and minutes.

..... hours ..... minutes

(Total for Question 8 is 4 marks)

(9) ABC and DEF are similar triangles.



(a) Work out the length of DF.

.....cm
(1)

(b) Work out the length of BC.

.....cm
(2)
(Total for Question 1 is 4 marks)

(10) The table shows information about the heights, in cm, of 48 sunflowers in a garden centre.

Height of sunflower (h cm)	Frequency
$90 < h < 100$	8
$100 < h < 110$	12
$110 < h < 120$	15
$120 < h < 130$	10
$130 < h < 140$	3

Work out an estimate for the mean height of the sunflowers.

.....cm

(Total for Question 10 is 4 marks)

(11) Given the triangle ABC

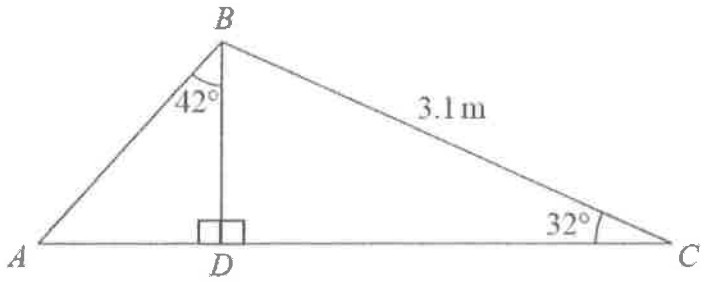


Diagram **NOT** accurately drawn

Calculate the length of AB.
Show your working clearly.
Give your answer correct to 3 significant figures.

..... m

(Total for Question 6 is 5 marks)

(12) There are 10 people in a lift. These 10 people have a mean weight of 79.2 kg. 3 of these people get out of the lift. These 3 people have a mean weight of 68 kg. Work out the mean weight of the 7 people left in the lift.

.....kg

(Total for Question 8 is 3 marks)

(13) (a) Write 7.8×10^4 as an ordinary number.

.....

(1)

(b) Work out $\frac{5.6\times10^4+7\times10^3}{2.8\times10^{-3}}$

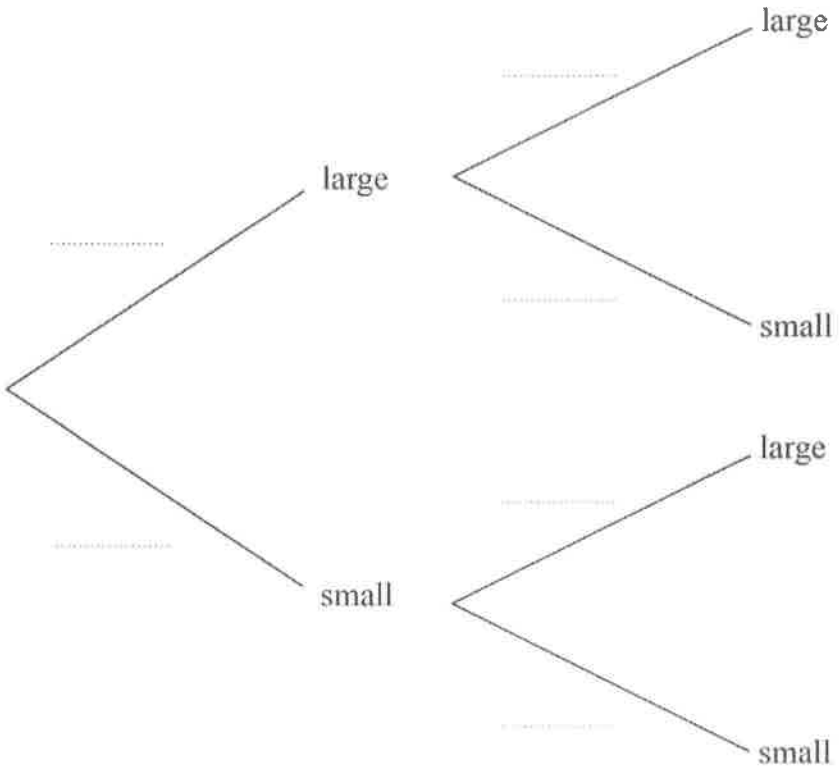
Give your answer in standard form.

.....

(2)

(Total for Question 4 is 3 marks)

(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.



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

..... (2)
(Total for Question 6 is 4 marks)

Answer ALL questions.
Write your answers in the spaces provided.
You must write down all the stages in your working.

(1) Work out the difference between the largest share and the smallest share when 3450 yen is divided in the ratios 2: 6: 7

Smallest share s
middle share m
Largest share l

$\frac{s}{2} = \frac{m}{6} = \frac{l}{7} = \frac{s+m+l}{2+6+7} = \frac{3450}{15} = 230$

smallest share $\frac{s}{2} = 230$; so $s = 2 \times 230 = 460$
middle share $\frac{m}{6} = 230$; so $m = 6 \times 230 = 1380$
Largest share $\frac{l}{7} = 230$; so $l = 7 \times 230 = 1610$
difference $= 1610 - 460 = 1150$

.....1150..... yen
(Total for Question 1 is 3 marks)

---

(2) Gopal is paid £20 000 each month. Jamuna is paid £19 200 each month.
Gopal and Jamuna are both given an increase in their monthly pay.
After the increase, they are both paid the same amount each month.
Gopal was given an increase of 8%
Work out the percentage increase that Jamuna was given.

	Gopal	Jamuna
old Salary	20000	19200
raise rate	8%	x%
new Salary		

$20000 \times (1+8\%)$
$= 21600$

$19200(1+x\%) = 21600$
$1+x\% = 21600 \div 19200$
$1+x\% = 1.125$
$x\% = 0.125$

.....12.5.....%
(Total for Question 2 is 4 marks)

---

(3) The diagram shows two cylinders, A and B

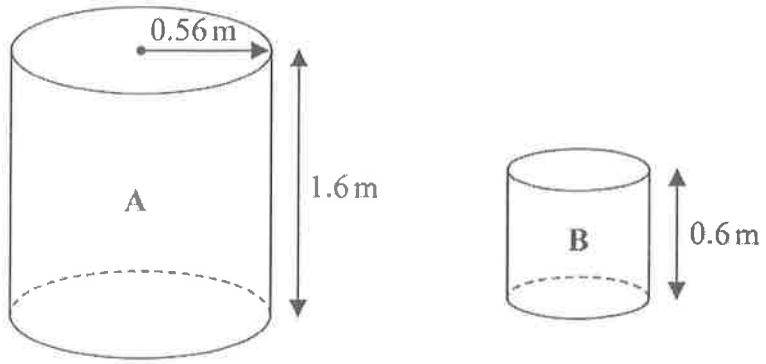


Diagram **NOT** accurately drawn

Cylinder A has height 1.6 m and radius 0.56 m.
Work out the curved surface area of cylinder A. Give your answer in m^2 correct to 3 significant figures. (curved surface of a cylinder $S = 2\pi rh$)

$S_A = 2\pi rh = 2\pi(0.56\text{m})(1.6\text{m}) = 5.630\,m^2$

5.63 ..... m^2
(2)

Cylinder B is mathematically similar to cylinder A. The height of cylinder B is 0.6 m.
(b) Work out the radius of cylinder B.

$\frac{\text{radius A}}{\text{radius B}} = \frac{\text{height A}}{\text{height B}}$

$\frac{0.56}{r} = \frac{1.6}{0.6}$

$1.6r = 0.6 \times 0.56$

$r = \frac{0.336}{1.6} = 0.21$

0.21 ..... m
(2)
(Total for Question 3 is 4 marks)

---

(4) Berna makes candles.

She has 9.2 kilograms of wax and uses it all to make candles. Each candle Berna makes uses 230 grams of wax. Berna sells $\frac{2}{5}$ of the candles for £14 each. She then reduces this price by 25% and sells the rest of the candles.

Work out the total amount of money Berna gets by selling all the candles she made.

number of candles = 9.2kg ÷ 230g = 9200 ÷ 230 = 40 candles

first group of candles $\frac{2}{5} \times 40 = 16$; Sales $16 \times £14 = 224£$

second group of candles $\frac{3}{5} \times 40 = 24$;

Sales $24 \times 14 \times (1-25\%) = £252$

total sales $224 + 252 = 476$

£ 476

(Total for Question 4 is 4 marks)

---

(5) Solve $\frac{8x-3}{5} = x + 3$ Show clear algebraic working.

$8x - 3 = 5x + 15$

$8x - 5x = 15 + 3$

$3x = 18$

$x = 18 \div 3 = 6$

x = 6

(Total for Question 5 is 3 marks)

---

(6) Emily flew by plane from Dubai to Paris.
The flight time was 4 hours 56 minutes.
The average speed of the plane was 660 kilometers per hour.
Work out the distance the plane flew.

$d = s \times t = 660 \text{ km} \times (4 \text{ h } 56 \text{ min}) = 660 \times \left(4 + \frac{56}{60}\right)$

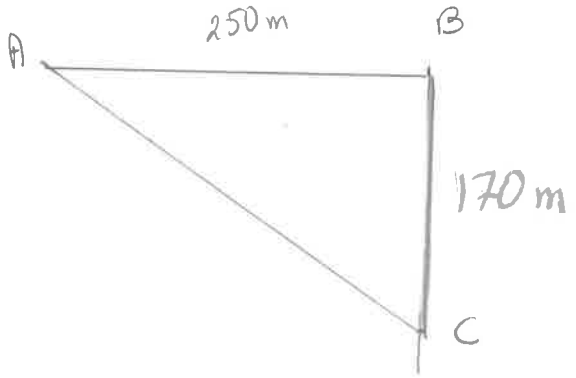
$= 660 \left(\frac{74}{15}\right) = 3256$

x = 3256 km

(Total for Question 6 is 3 marks)

---

(7) From point A, Samir walks 250 m due east to point B. From B, he then walks 170 m due south to point C. Work out the length of AC. Give your answer correct to 3 significant figures.



$AC^2 = AB^2 + BC^2$ (Pythagoras rule)

$= 250^2 + 170^2$

$= 91400$

$AC = \sqrt{91400} = 302.32$

302 meters

(Total for Question 7 is 3 marks)

---

(8) Here is an empty pool in the shape of a cuboid

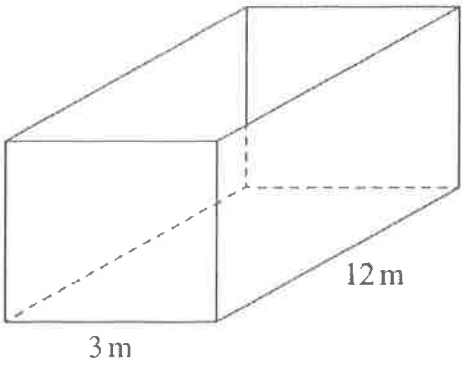


Diagram **NOT** accurately drawn

the width of the pool is 3 m.
The length of the pool is 12 m.
The top of the pool is 2.5 m above the base of the pool
The level of the surface of the water will be 40 cm below the top of the pool.
Water flows into the pool at 450 liters per minute.
1 m^3 = 1000 liter
How long will it take to fill the pool to 60 cm below the top of the pool?
Give your answer in hours and minutes.

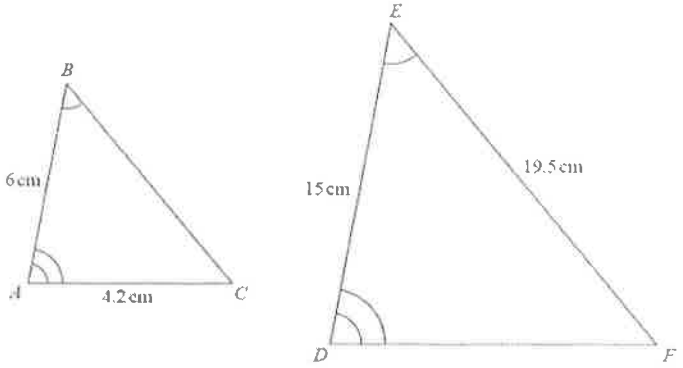
Volume of water = 3m x 12m x (2.5 - 0.6)m = 68.4 m^3
= 68 400 liters.

Time = Volume ÷ flow speed
= 68400 liters ÷ 450 liters per min
= 152 minutes = 120 + 32
= 2h 32min

..... 2 ..... hours ..... 32 ..... minutes

(Total for Question 8 is 4 marks)

(9) ABC and DEF are similar triangles.



(a) Work out the length of DF.

$\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$

$\frac{6}{15} = \frac{BC}{19.5} = \frac{4.2}{DF}$

$\frac{6}{15} = \frac{4.2}{DF} \rightarrow 6DF = 15 \times 4.2$

$DF = 63 \div 6$

10.5 cm

(1)

(b) Work out the length of BC.

$\frac{6}{15} = \frac{BC}{19.5}$

$15BC = 6 \times 19.5$

$BC = 117 \div 15$

$= 7.8$

7.8 cm

(2)

(Total for Question 1 is 4 marks)

(10) The table shows information about the heights, in cm, of 48 sunflowers in a garden centre.

Height of sunflower (h cm)	Frequency	center c_i	$f_i c_i$
$90 < h < 100$	8	95	760
$100 < h < 110$	12	105	1260
$110 < h < 120$	15	115	1725
$120 < h < 130$	10	125	1250
$130 < h < 140$	3	135	405
total	48		5400

Work out an estimate for the mean height of the sunflowers.

mean: $\bar{x} = \frac{5400}{48} = 112.5$

112.5 cm

(Total for Question 10 is 4 marks)

(11) Given the triangle ABC

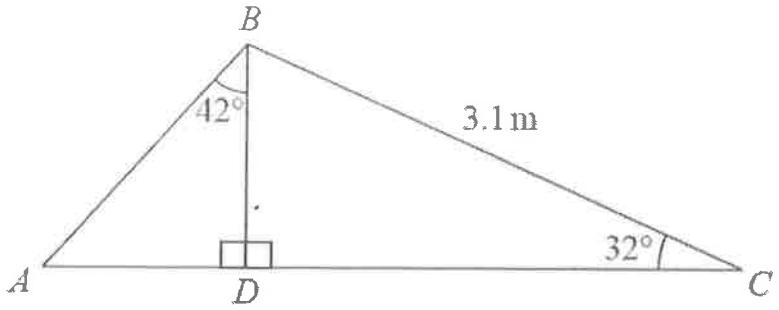


Diagram **NOT** accurately drawn

Calculate the length of AB.
Show your working clearly.
Give your answer correct to 3 significant figures.

In triangle BCD, right angled at D

$\sin(C) = \frac{BD}{BC}$; $BD = BC \cdot \sin(C) = 3.1 \times \sin(32^\circ)$

$BD = 1.643$ m

In triangle ABD right angled at D

$\cos(\hat{ABD}) = \frac{BD}{AB}$; $AB = \frac{BD}{\cos(\hat{ABD})} = \frac{1.643}{\cos(42^\circ)}$

$= 2.21$

2.21 m

(Total for Question 6 is 5 marks)

(12) There are 10 people in a lift. These 10 people have a mean weight of 79.2 kg. 3 of these people get out of the lift. These 3 people have a mean weight of 68 kg. Work out the mean weight of the 7 people left in the lift.

People	Average weight	Total weight
10	79.2	792
3	68	204
7	x	$7x$

$7x + 204 = 792$

$7x = 792 - 204 = 588$

$x = 588 \div 7 = 84$

84 kg

(Total for Question 8 is 3 marks)

(13) (a) Write 7.8×10^4 as an ordinary number.

78 000

.....

(1)

(b) Work out $\frac{5.6\times10^4+7\times10^3}{2.8\times10^{-3}}$

Give your answer in standard form.

$$\frac{5.6 \times 10^4 + 0.7 \times 10^4}{2.8 \times 10^{-3}} = \frac{6.3 \times 10^4}{2.8 \times 10^{-3}}$$

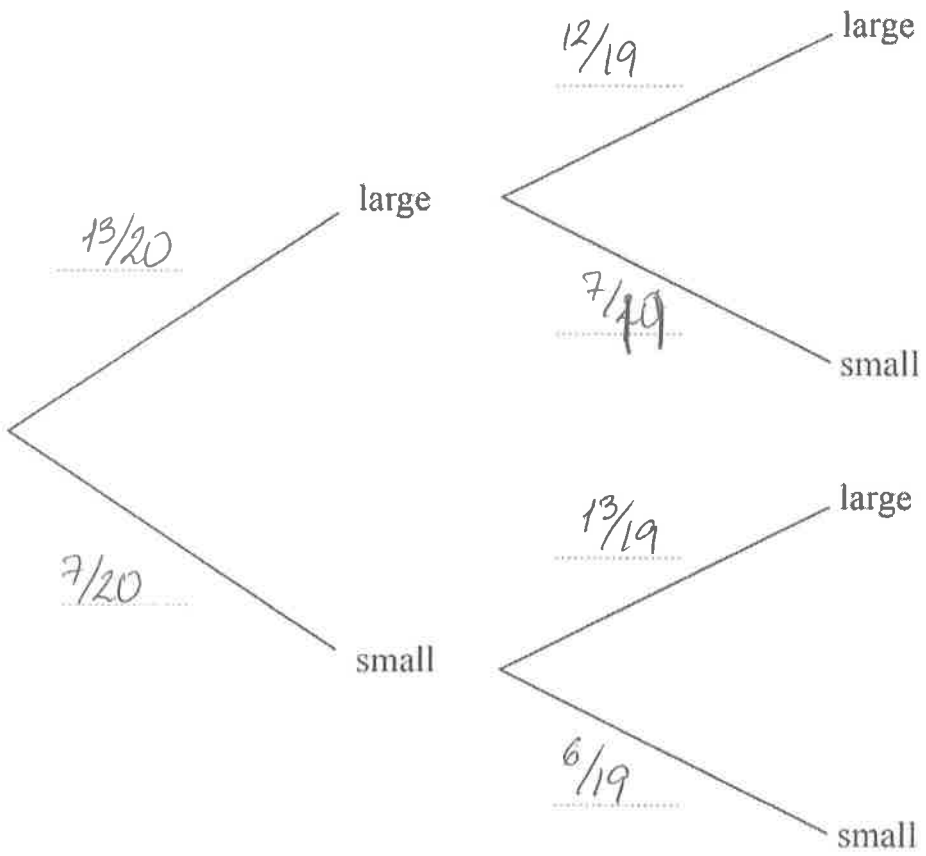
$$= 2.25 \times 10^7$$

2.25×10^7 .....

(2)

(Total for Question 4 is 3 marks)

(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.



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

$P(\text{small, small}) = \frac{7}{20} \times \frac{6}{19} = \frac{21}{190}$

$\frac{21}{190}$ (2)

(Total for Question 6 is 4 marks)