This is a Class 1 exam

Lebanon Evangelical School for Boys and Girls

# Lebanon Evangelical School

for Boys and Girls Loueizeh - Baabda

# SE02 Exam

## 15DEC2025

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

| | | |
|---|---|---|
| Subject : | A Level : Maths M0 | |
| Class : | 11A and 12A | |
| Teacher : | Mr. Farhan Batch | |
| Duration : | 1 hour | |
| 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.

№ 1

Elena invests £ 4000 in an account for one year. At the end of the year interest is added to her account. Elena pays tax on the interest at a rate of 20%. She pays £ 15.20.

Work out the percentage interest rate for the account.

(Total for Question 1 is 3 marks)

№ 2

A farmer uses 1.8 acres out of every 5 acres of land to grow crops. She grows corn on $\frac{5}{6}$ of the land she uses for crops. What percentage of the total area of her land does she use to grow corn?

(Total for Question 2 is 2 marks)

№ 3

Using algebra, prove that $0.3\dot{6} \times 0.\dot{5}\dot{4}$ is equal to $\frac{1}{5}$

(Total for Question 3 is 3 marks)

№ 4

Use your calculator to find these trigonometric functions. Give your answers correct to 3 decimal places.

(a) sin (40°) (b) cos (85°) (c) tan (60°)

(Total for Question 4 is 3 marks)

№ 5

Find the inverse function on your calculator to find these angles. Give your answers correct to 0.1°.

(a) sin (θ) = 0.567 (b) cos (θ) = 0.123 (c) tan (θ) = 35.72

(Total for Question 5 is 3 marks)

№ 6

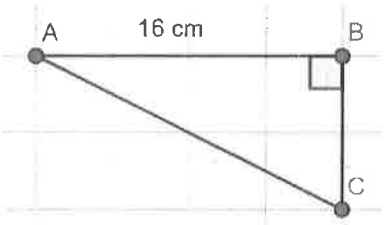
The exterior angle of a **regular** polygon is one third the size of the interior angle.

How many sides does the polygon have?

(Total for Question 6 is 3 marks)

№ 7

ABC is a right-angled triangle. AB = 16 cm, Angle B = 90°
Size of angle A : Size of angle C = 4 : 5
Work out the length of BC.
Give your answer correct to 3 significant figures.

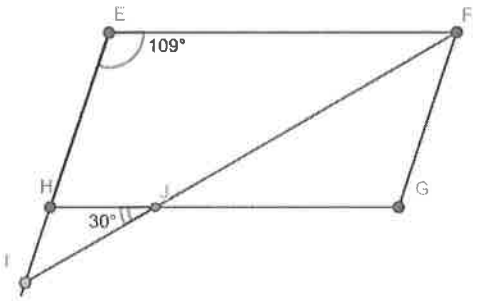



(Total for Question 7 is 5 marks)

№ 8

EFGH is a parallelogram. (FJI) is a straight line. I is the point on (EH) so that (IJF) is a straight line. $\widehat{HJI} = 30°$ *and* $\widehat{HEF} = 109°$. Show that $\widehat{GFJ} = 41°$.

(Give reason for each stage of your working.)

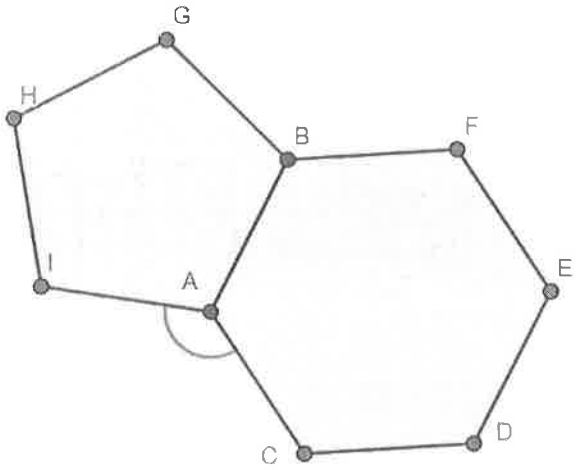



(Total for Question 8 is 4 marks)

№ 9

AB is a side of the regular hexagon ABCDEF and a side of the regular pentagon ABGHI. Calculate the measure of $\widehat{IAC}$

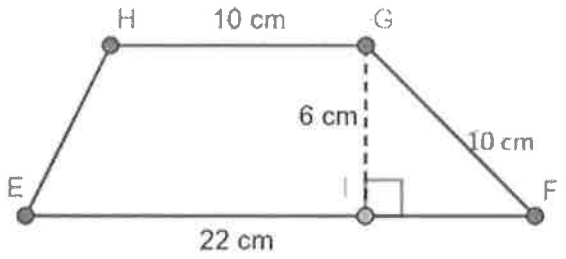
(Give reason for each stage of your working.)




(Total for Question 9 is 4 marks)

№ 10

EFGH is a trapezium. Work out the size of angle $\widehat{HEF}$.
Give your answer correct to 1 decimal place
(Give reason for each stage of your working.)




(Total for Question 10 is 5 marks)

№ 11

A line $L_1$ passes through the points $A(-1, 6)$ and $B\left(\frac{3}{2}, 1\right)$.

The equation of line $L_2$ is $2y - 3x - 1 = 0$,

find the coordinates of the point C where the two lines intersect

(Total for Question 11 is 5 marks)

(Total for this exam is 40 marks)

№ 1

Elena invests £ 4000 in an account for one year. At the end of the year interest is added to her account. Elena pays tax on the interest at a rate of 20%. She pays £ 15.20.

Work out the percentage interest rate for the account.

the interest for one year is $4000 \times r\% = 40r$ (1)

tax on interest is $20\%$ of $40r = 8r$ (1)

$8r = 15.20$ so $r = \frac{15.20}{8} = 1.9\%$ (1)

(Total for Question 1 is 3 marks)

№ 2

A farmer uses 1.8 acres out of every 5 acres of land to grow crops. She grows corn on $\frac{5}{6}$ of the land she uses for crops. What percentage of the total area of her land does she use to grow corn?

Crops ratio $\frac{1.8}{5} = \frac{18}{50} = \frac{9}{25}$ (1)

Corn $\frac{5}{6} \times \frac{9}{25} = \frac{3}{10} = 30\%$ (1)

(Total for Question 2 is 2 marks)

№ 3

Using algebra, prove that $0.3\dot{6} \times 0.\dot{5}\dot{4}$ is equal to $\frac{1}{5}$

$x = 0.3\dot{6} = 0.3666...$

$10x = 3.666...$

$100x = 36.666...$

$-10x = -3.666...$

$90x = 33.000$

$x = \frac{33}{90} = \frac{11}{30}$ (1)

$y = 0.\dot{5}\dot{4} = 0.545454...$

$100y = 54.545454...$

$-y = -0.545454...$

$99y = 54.000...$

$y = \frac{54}{99} = \frac{6}{11}$ (1)

$0.3\dot{6} \times 0.\dot{5}\dot{4} = \frac{11}{30} \times \frac{6}{11} = \frac{1}{5}$ (1)

(Total for Question 3 is 3 marks)

№ 4

Use your calculator to find these trigonometric functions. Give your answers correct to 3 decimal places.

(a) sin (40°)

0.643 (1)

(b) cos (85°)

0.087 (1)

(c) tan (60°)

1.732 (1)

(Total for Question 4 is 3 marks)

№ 5

Find the inverse function on your calculator to find these angles. Give your answers correct to 0.1°.

(a) sin (θ) = 0.567

34.5° (1)

(b) cos (θ) = 0.123

82.9° (1)

(c) tan (θ) = 35.72

88.4° (1)

(Total for Question 5 is 3 marks)

№ 6

The exterior angle of a **regular** polygon is one third the size of the interior angle.

How many sides does the polygon have?

exterior + interior = 180° (angles on a straight line) (1)

$\frac{1}{3}x + x = 180°$

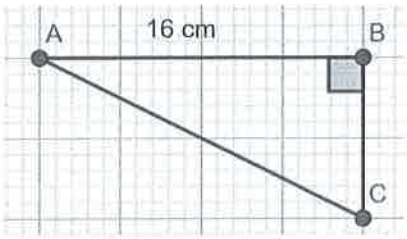
$\frac{4}{3}x = 180°$ so $x = 180° \times \frac{3}{4} = 135°$ (1)

exterior $= \frac{1}{3} \times 135° = 45°$ ; $n = \frac{360°}{45°} = 8$ (1)

(Total for Question 6 is 3 marks)

№ 7

ABC is a right-angled triangle. AB = 16 cm, Angle B = 90°
Size of angle A : Size of angle C = 4 : 5
Work out the length of BC.
Give your answer correct to 3 significant figures.




$\frac{A}{4} = \frac{C}{5} = \frac{A+C}{9} = \frac{90}{9} = 10$ (1)

So $A = 40°$ (1) ; $C = 50°$ (1)

($A + C = 90°$ sum of acute angles in a right triangle) (1)

$\tan A = \frac{BC}{AB}$ so $BC = AB \times \tan A$

$= 16 \times \tan 40°$

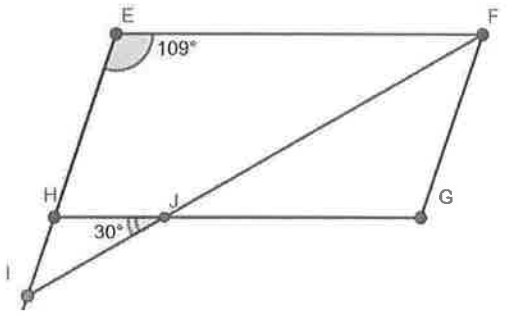
$= 13.4$ (1)

(Total for Question 7 is 5 marks)

№ 8

EFGH is a parallelogram. (FJI) is a straight line. I is the point on (EH) so that (IJF) is a straight line. $\widehat{HJI} = 30°$ *and* $\widehat{HEF} = 109°$. Show that $\widehat{GFJ} = 41°$.

(Give reason for each stage of your working.)




$\hat{FEH} = \hat{FGH} = 109°$ opposite angles in a parallelogram (1)

$\hat{FJG} = \hat{HJI} = 30°$ Vertically opposite angles (1)

$\hat{GFJ} + \hat{FJG} + \hat{FGJ} = 180°$ Sum of angles in a triangle (1)

$\hat{GFJ} + 30° + 109° = 180°$ substitution (1)

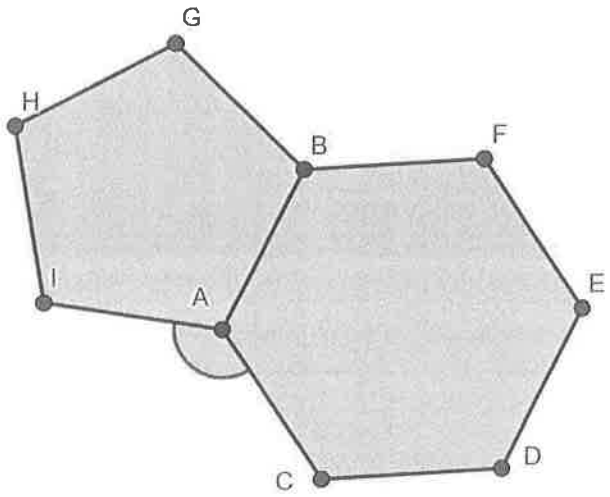
$\hat{GFJ} = 180° - (30° + 109°) = 41°$ (1)

(Total for Question 8 is 4 marks)

№ 9

AB is a side of the regular hexagon ABCDEF and a side of the regular pentagon ABGHI. Calculate the measure of $\widehat{IAC}$

(Give reason for each stage of your working.)




interior angle of a pentagon $\frac{(5-2)\cdot 180^\circ}{5} = 108^\circ$

So $I\hat{A}B = 108^\circ$ (1)

interior angle of a hexagon $\frac{(6-2)\cdot 180^\circ}{6} = 120^\circ$

So $B\hat{A}C = 120^\circ$ (1)

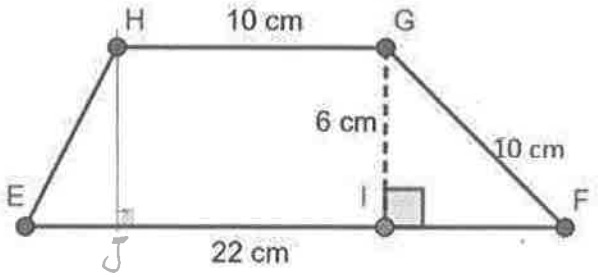
$I\hat{A}C + I\hat{A}B + B\hat{A}C = 360^\circ$ (angles around a point) (1)

$I\hat{A}C = 360^\circ - (108^\circ + 120^\circ) = 132^\circ$ (1)

(Total for Question 9 is 4 marks)

№ 10

EFGH is a trapezium. Work out the size of angle $\widehat{HEF}$.
Give your answer correct to 1 decimal place
(Give reason for each stage of your working.)




$HG = JI = 10$ cm
$GI = HJ = 6$ cm

in triangle GIF right at I
$GF^2 = GI^2 + IF^2$ (pythagoras)
$IF^2 = 10^2 - 6^2 = 100 - 36 = 64$ so $IF = 8$
$EJ = EF - (JI + IF) = 22 - (10 + 8) = 4$

$\tan \hat{HEJ} = \frac{HJ}{EJ} = \frac{6}{4}$ then $HEJ = \tan^{-1}\left(\frac{6}{4}\right)$
$= 56.3°$

(Total for Question 10 is 5 marks)

№ 11

A line $L_1$ passes through the points $A(-1, 6)$ and $B\left(\frac{3}{2}, 1\right)$.

The equation of line $L_2$ is $2y - 3x - 1 = 0$,

find the coordinates of the point C where the two lines intersect

gradient of $L_1$ : $\frac{1-6}{\frac{3}{2}-(-1)} = \frac{-5}{5/2} = -2$ (1)

equation of $L_1$ : $y = mx + c$

$6 = -2(-1) + c$ ; $c = 4$

$L_1$: $y = -2x + 4$ (1)

$L_2$: $2y - 3x - 1 = 0$

intersection: $2(-2x+4) - 3x - 1 = 0$ (1)

$-4x + 8 - 3x - 1 = 0$

$-7x = -7$

$x = 1$ (1) ; $y = -2(1) + 4 = 2$ (1)

C(1, 2)

(Total for Question 11 is 5 marks)

(Total for this exam is 40 marks)