

FINAL REVISION (3)

FIRST TERM

FORM 10

MATHS

Mr. Samer Samir

Final Revision (3)

1. Choose the correct answer:

**1) If $x = 2$ is a root of the equation: $x^2 - 6x + 8 = 0$,
then the other root is**

a) 4

b) 3

c) 5

d) 6

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2) *The simplest form of the imaginary number $i^{80} = \dots$*

a) 0

b) 1

c) -1

d) i

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3) If the roots of the equation: $x^2 + mx + 9 = 0$ are equal real roots, then $m = \dots\dots\dots$

a) 6

b) -6

c) ± 6

d) 3

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4) If one of the roots of the equation: $ax^2 + 3x + 7 = 0$ is the multiplicative inverse of the other root, then

$a = \dots\dots\dots$

a) 1

b) 7

c) 3

d) 4

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5) If L, M are the roots of the equation:

$$x^2 - 4x + 3 = 0, \text{ then } L + M + LM = \dots\dots\dots$$

a) 0

b) 3

c) 4

d) 7

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6) If L is the root of the equation: $x^2 + 3x + 2 = 0$,
then $L^2 + 3L + 2 = \dots\dots$

a) 0

b) 3

c) 2

d) 5

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7) *The quadratic equation whose roots are 2 and -2 is*

.....

a) $x^2 - 4 = 0$

b) $x^2 + 4 = 0$

c) $x^2 + 2 = 0$

d) $x^2 - 2 = 0$

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8) The function $f(x) = x^2 - 25$ is negative at $x \in \dots\dots$

- a) \mathbb{R} b) $]-5, 5[$ c) $] -\infty, -5[$ d) $]5, \infty[$

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9) *The angle of measure 1000° lies in the quadrant.*

- a) first b) second c) third d) fourth*

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10) If $\tan x = 1$, where x is a positive acute angle,
then the measure of angle $x = \dots\dots\dots^\circ$

a) 30

b) 45

c) 60

d) 75

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11) If $\sin \theta > 0$, $\cos \theta < 0$, then θ lies in the quadrant.

- a) first b) second c) third d) fourth

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12) $\sin 30^\circ + \cos 60^\circ - \cot 45^\circ = \dots\dots$

a) 0

b) 1

c) 2

d) 3

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13) If $\sin \theta = \cos 2\theta$, $0^\circ < \theta < 90^\circ$, then $\theta = \dots\dots^\circ$

a) 45

b) 30

c) 60

d) 75

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14) The range of the function $f(\theta) = \sin \theta$ is

a) $[-1, 1]$ b) $\{-1, 1\}$

c) $] -\infty, \infty[$ d) Φ

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15) The two similar polygons are congruent if the scale factor K satisfies

- a) $K > 1$ b) $K = 1$ c) $K < 1$ d) $K = 0.5$**

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16) If $\triangle ABC \sim \triangle XYZ$, $m(\angle A) = 50^\circ$, $m(\angle B) = 60^\circ$,
then $m(\angle Z) = \dots^\circ$

a) 50

b) 60

c) 70

d) 110

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17) If $\triangle ABC \sim \triangle DEF$, $AB = 3 \text{ cm}$, $DE = 6 \text{ cm}$,
 $EF = 8 \text{ cm}$, then $BC = .. \text{ cm}$

a) 4

b) 3

c) 2

d) 17

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18) If the ratio between the perimeters of two similar polygons is $3 : 4$, then the ratio between their areas is

- a) $3 : 4$ b) $4 : 3$ c) $9 : 16$ d) $5 : 6$**

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19) If $\triangle ABC \sim \triangle XYZ$, $2AB = 3XY$, then area of $\triangle ABC$: area of $\triangle XYZ = \dots$

a) $9 : 4$

b) $4 : 9$

c) $2 : 3$

d) $3 : 2$

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20) If the ratio between the corresponding sides of two similar triangles is $2 : 5$, if the area of the first triangle is 16 cm^2 , then the area of the second triangle = cm^2

a) 40

b) 80

c) 100

d) 120

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21) $\triangle ABC$ in which $D \in \overline{AB}$, $E \in \overline{AC}$, $\overline{DE} \parallel \overline{BC}$,
 $AD = 2 \text{ cm}$, $DB = 4 \text{ cm}$ and $AE = 3 \text{ cm}$, then
 $EC = \dots\dots \text{ cm}$

a) 2

b) 3

c) 4

d) 6

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22) $\triangle ABC$ in which $D \in \overline{BC}$, \overrightarrow{AD} bisects $\angle BAC$,
 $AB = 4 \text{ cm}$, $AC = 8 \text{ cm}$ and $BD = 3 \text{ cm}$, then
 $CD = \dots\dots \text{ cm}$

a) 3

b) 4

c) 6

d) 8

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23) The measure of the angle included between the interior and the exterior bisectors at any vertex of angles of the triangle = °

a) 30

b) 45

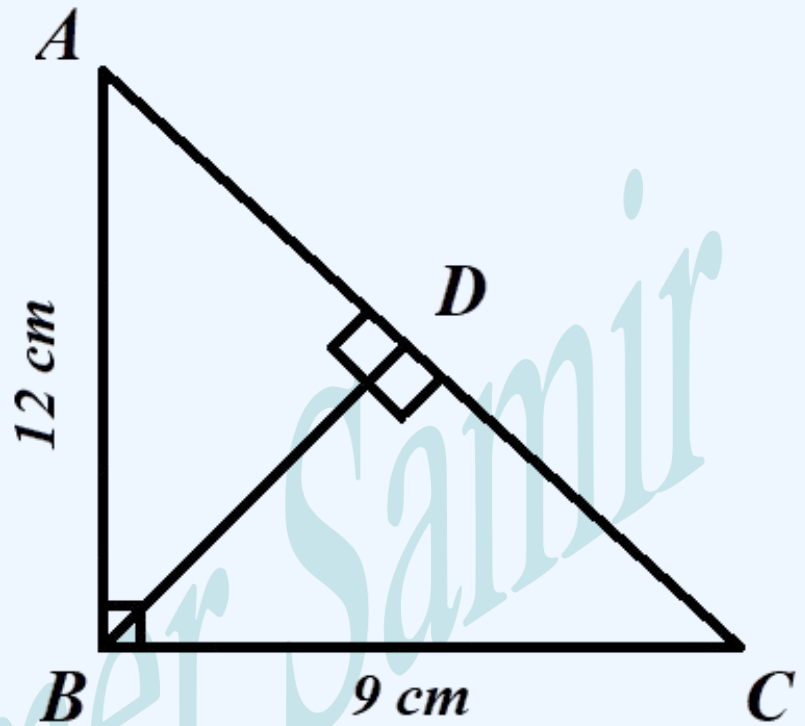
c) 60

d) 90

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24) In the opposite figure: $\triangle ABC$ is right angled at B , $\overline{BD} \perp \overline{AC}$, $AB = 12\text{ cm}$, $CD = 9\text{ cm}$, then $BD = \dots\dots\dots\text{ cm}$

- a) 7.2 b) 7.5
c) 8 d) 9.5



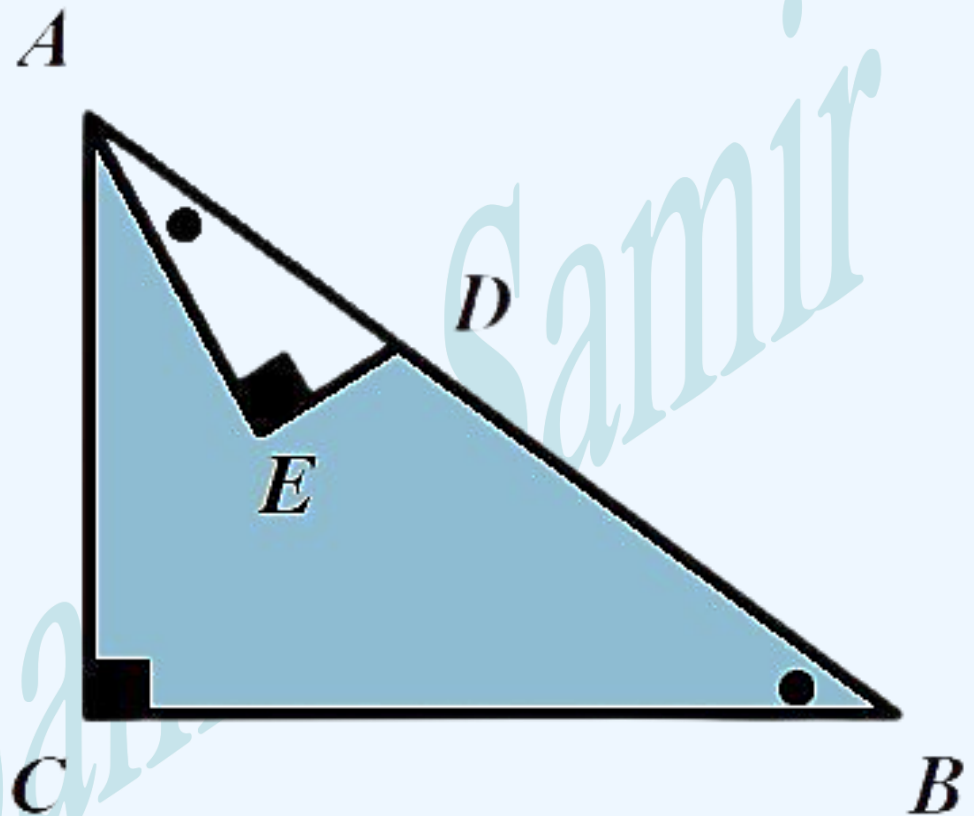
25) In the opposite figure: If $AB = 3AD$ and the area of $\triangle ADE = 6 \text{ cm}^2$, then the area of the shaded part =

a) 12

b) 24

c) 48

d) 54



26) The arc of length 5π in a circle of radius length 15 cm is opposite to a central angle of measure

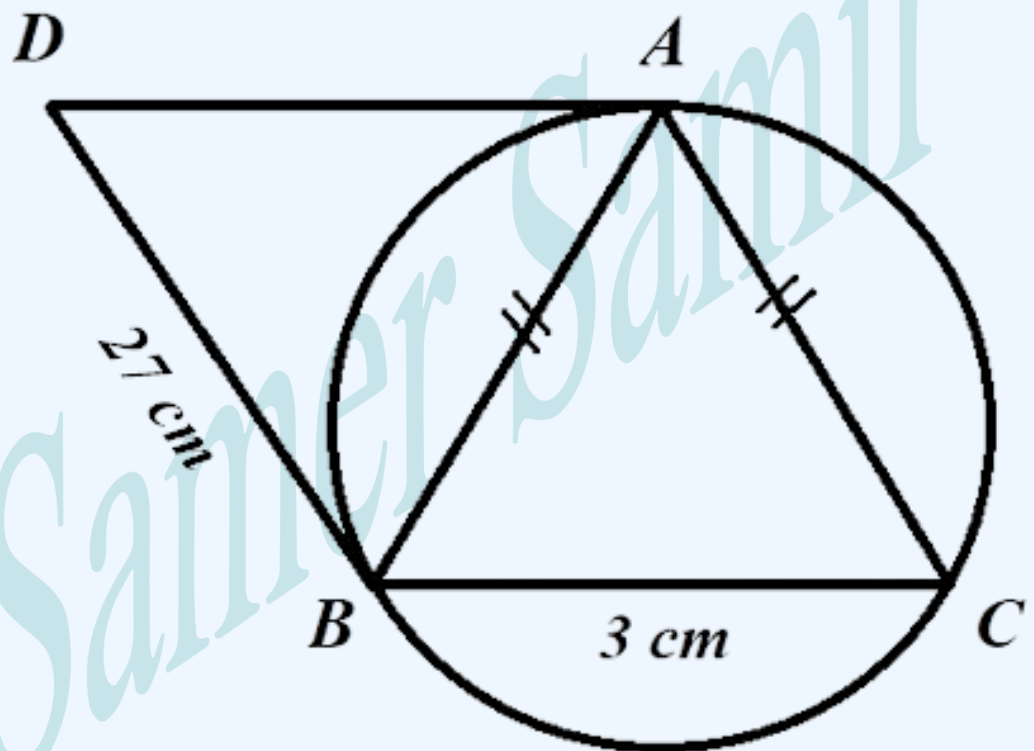
- a) 30° b) 60° c) 90° d) 180°**

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27) In the opposite figure:

\overrightarrow{DA} , \overrightarrow{DB} are two tangent segments to a circle at A , B respectively, $DB = 27$ cm, $AB = AC$, $BC = 3$ cm, then $AB = \dots\dots\dots$ cm

- a) 3 b) 9 c) 8 d) 2



2. Answer the following essay questions:

1) If L and M are the two roots of the equation:

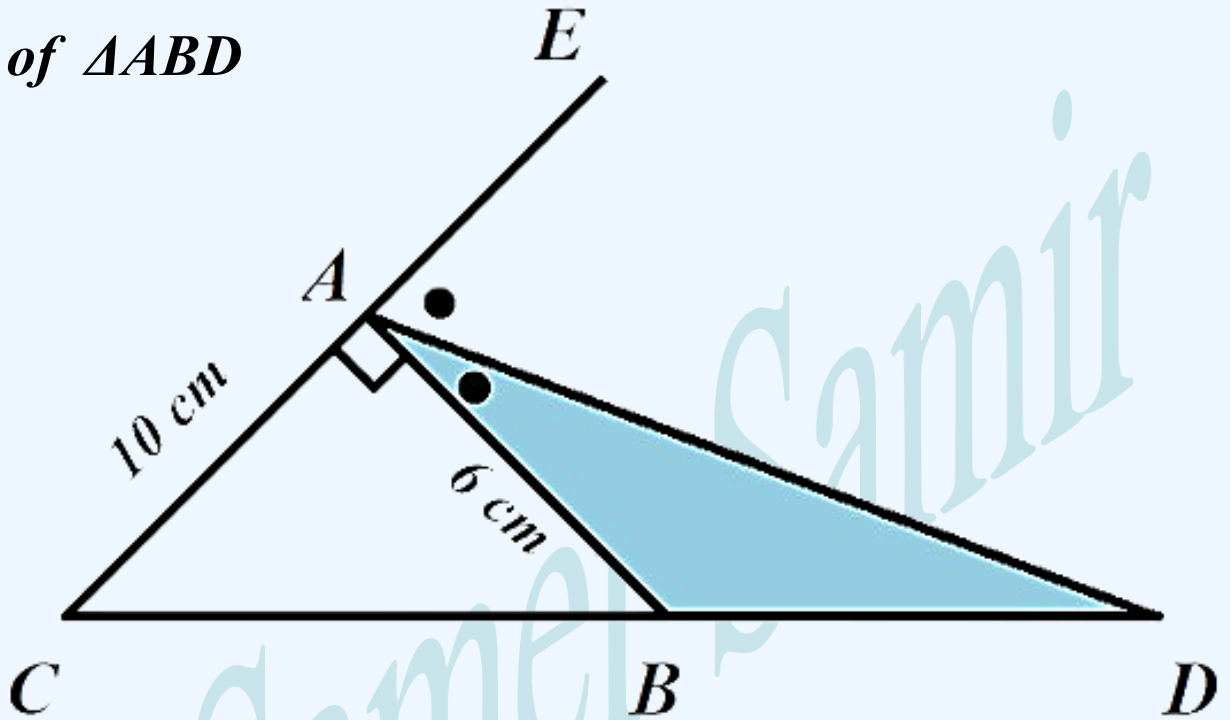
$x^2 - 3x + 2 = 0$, then form the quadratic equation

whose two roots are $\frac{1}{L}$, $\frac{1}{M}$

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2) In the opposite figure:

$\triangle ABC$ is a right angled triangle at A , \overrightarrow{AD} bisects $\angle A$ externally, $AB = 6 \text{ cm}$, $AC = 10 \text{ cm}$, then find the area of $\triangle ABD$



3) Find in \mathbb{R} the solution set of the inequality:

$$x^2 - 5x + 6 < 0$$

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4) $ABCD$ is a quadrilateral in which $AB = 6 \text{ cm}$,
 $BC = 9 \text{ cm}$, $CD = 6 \text{ cm}$, $AD = 4 \text{ cm}$, \overrightarrow{AE} bisects $\angle A$
 and intersects \overline{BD} at E , prove that: \overrightarrow{CE} bisects $\angle BCD$

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