Final Revision Algebra & Trigonometry
November Exam 1st secondary

1. Choose the correct answer:

1) If $x = 2$, is one root of the equation: $x^2 - kx - 6 = 0$,

then $k =$ _____

a) 1 b) -1 c) 2 d) zero

2) The quadratic equation whose roots are $\frac{3}{2}i$, $\frac{3}{2}i^3$ is

_____

a) $4x^2 - 9 = 0$ b) $4x^2 + 9 = 0$

c) $9x^2 - 4 = 0$ d) $9x^2 + 4 = 0$

3) If the roots of the equation: $x^2 + 4x + k = 0$, are different and real, then $k \in$ _____

a) $]-\infty , 4[$ b) $]4 , \infty [$

c) $]-\infty , 4]$ d) $\{4\}$

4) *The sum of the two roots of the equation:* $5x^2 - 3 = 0$

is _____

a) $\frac{3}{5}$ *b)* $\frac{-3}{5}$ *c) zero* *d)* $\frac{5}{3}$

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

$x^2 - 7x + 3 = 0$, then the value of the expression:

$L^2M + LM^2 =$ _____

a) 7 b) 3 c) 10 d) 21

6) If L is one of the two roots of the equation:

$x^2 - 3x + 1 = zero$, then $L^2 - 3L + 5 =$ _____

a) 1 *b) 6* *c) 4* *d) -6*

7) If $\frac{2}{L}$, $\frac{2}{M}$ are the two roots of the equation:

$4x^2 - 3x - 2 = 0$, then $L + M =$ _____

a) -3 b) 3 c) -8 d) $\frac{-3}{4}$

8) If one root of the equation: $(x - k)^2 - 6x = zero$ is the additive inverse of the other, then $k =$ _____

a) -3 b) 6 c) -6 d) 9

9) If L is one root of the equation:

$x^2 - 3x + 5 = zero$, then the value of the expression

$2L^2 - 6L + 15 =$ _____

a) 3 ***b) 5*** ***c) 15*** ***d) 10***

10) If L , M are the two roots of the equation:

$x^2 - 5x + 7 = 0$, then the value of the expression:

$L^2M + LM^2 =$ _____

a) 25 b) 12 c) 35 d) 40

11) If L , $\frac{4}{L}$ are the two roots of the equation:

$x^2 + 7x + k = 0$, then k = _____

a) 4 ***b) 7*** ***c) -7*** ***d) 6***

12) If (2 - i) is one of the roots of the equation:

$x^2 - 4x + k = zero$, then $k =$ _____

a) 3 b) -3 c) 5 d) -5

13) If L , M are the two roots of the equation:

$x^2 - 5x + 6 = 0$, then the equation whose roots are (L - M) and (M - L) is _____

a) $x^2 + 1 = 0$ b) $x^2 - 1 = 0$

c) $x^2 + 25 = 0$ d) $x^2 - x = 0$

14) If L^2 and L are the two roots of the equation:

$x^2 + ax + 8 = 0$, then $a =$ _____

a) -6 b) 6 c) 4 d) 8

15) If the product of two roots of the equation:

$(k - 2)x^2 - 6x + 12 = 0$ equals 3, then $k =$ _____

a) 6 b) 4 c) 14 d) 2

16) The simplest form of:

$\sin(270° - \theta) + \cos(360° - \theta) =$ _____

a) $2\cos\theta$ b) $-2\cos\theta$ c) -1 d) zero

17) If $10\sin\theta = 6$ where θ is the measure of the greatest positive angle, then the numerical value of the expression: $\sec(540° + \theta) =$ _____

a) $\frac{3}{5}$ b) $\frac{-5}{4}$ c) $\frac{5}{4}$ d) $\frac{-3}{5}$

18) If $\tan(180° + 5\theta) + \tan(270° + 4\theta) = 0$, then one value of θ which satisfy the equation where $\theta \in]0 , 90°[$ equals _____

a) 5 b) 10 c) 20 d) 90

19) *The simplest form of the expression:*

$\cos(180° + \theta) + \sin(90° + \theta) =$ _____

a) 0 b) 2 c) $2\cos\theta$ d) $2\sin\theta$

20) If $\sin(\theta + 13) = \cos(\theta + 17)$, where θ is positive acute angle, then $\tan\theta =$ _____

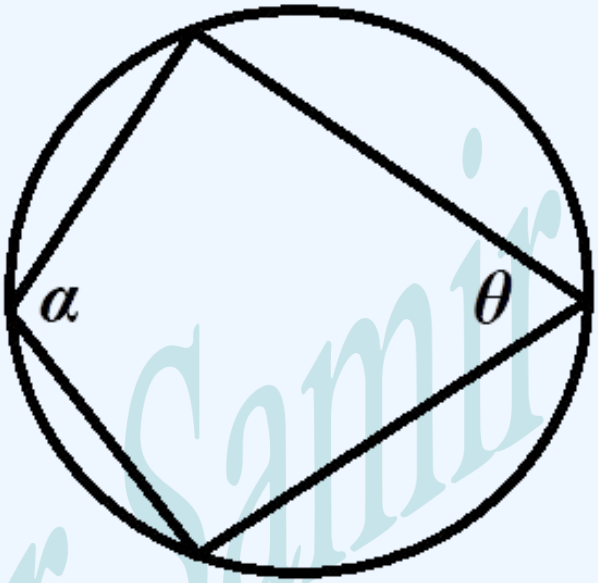
a) $\sqrt{3}$ b) $\frac{1}{2}$ c) $\frac{1}{\sqrt{3}}$ d) $\frac{\sqrt{3}}{2}$

21) In the opposite figure:

If $5\cos\theta = 3$, then $\tan\alpha =$ _____

a) $\frac{3}{4}$ b) $\frac{-3}{4}$

c) $\frac{3}{5}$ d) $\frac{-4}{3}$



22) If the terminal side of the angle θ in standard position intersects the unit circle at the point $B(x , \frac{4}{5})$ where $x < 0$, then $\sin(270° - \theta) =$ _____

a) $\frac{-3}{5}$ b) $\frac{4}{5}$ c) $\frac{3}{5}$ d) $\frac{-4}{5}$

23) The length of the arc of circle whose diameter length is 12 cm and opposite to a central angle of measure 90° = _____ cm

a) $\frac{3}{2}\pi$ b) 3π c) 6π d) $\frac{5}{2}\pi$

2. *Answer the following essay questions:*

1) If $L - 3$, $M - 3$ are the two roots of the equation:

$x^2 - 7x - 10 = 0$, then form the equation whose roots are: $\frac{1}{L}$, $\frac{1}{M}$

2) If $\frac{4}{L}$, $\frac{4}{M}$ are the two roots of the equation:

$x^2 - 5x + 2 = 0$, then find the quadratic equation whose roots are L , M

3) If L , M are the two roots of the equation:

$x^2 - 5x + 7 = 0$, then find the equation whose roots are: $(L + 2)$, $(M + 2)$