**MATHEMATICS**

**PAGEMAKER10**

**Trigonometrial Equation**

Q1. General solution of Sin x + Cos x = min a IR {1, a2 – 4a + 6} is

(a) + (–1)n

(b) + (–1)n

(c) + (–1)n+1

(d) + (–1)n

L1Difficulty1

Qtag Mathematics

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Q2. Sin2then the most general value of is

(a) 2n (–1)n

(b) (–1)n

(c) n

(d) 2n

L1Difficulty1

Qtag Mathematics

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Q3. If Cos + Sin = then the most geral value of is

(a) n + (–1)n

(b) (–1)n

(c) n

(d) n

L1Difficulty1

Qtag Mathematics

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Q4. 2 tan2 = Sec2 then the general value of is

(a) n

(b) n

(c) n

(d) 2n

L1Difficulty1

Qtag Mathematics

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Q5. p = Sin2 + Cos2 then

(a) p

(b) p

(c) 2 p 3

(d) p

L1Difficulty1

Qtag Mathematics

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Q6. Cos 2x + k Sin x = 2k – 7 has a solution for

(a) k < 3

(b) k < 2

(c) k > 3

(d) 2 < k < 6

L1Difficulty1

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Q7. If tan m = tan n, then the general value of will be in

(a) A.P

(b) G.P

(c) H.P

(d) none

L1Difficulty1

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Q8. If Cos 2 = ( then the value of is

(a) 2n +

(b) 2n

(c) 2n

(d) none

L1Difficulty1

Qtag Mathematics

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Q9. If tan + tan 2 + tan 3 = tan.tan 2 tan then the general value of is

(a) n

(b)

(c) n

(d)

L1Difficulty1

Qtag Mathematics

Qcreator Pagemaker10

Q10. General value of if tan + tan = 2 is

(a) n

(b) n

(c) 2n

(d) n (

L1Difficulty1

Qtag Mathematics

Qcreator Pagemaker10

**Solutions**

S1. Ans. (d)

Sol.

Sin x + Cos x = 

Here

(

Sin x + Cos x = 1

Sin x + Cos x =

Sin = = Sin

x = x + (–1

S2. Ans. (c)

Sol.

Sin2

S3. Ans. (d)

Sol.

Cos + Sin =

Sin = Sin

= n + (n

S4. Ans. (c)

Sol.

2 tan2 = tan2

tan

S5. Ans. (a)

Sol.

p = Sin2 (1

p =

0

S6. Ans. (d)

Sol.

2Sin2x

Sin x =

–1 < < 1

2 < k < 6

S7. Ans. (a)

Sol.

tan m = tan n

mp = p

=

Hence different values of are in A.P with as common difference

S8. Ans. (b)

Sol.

2Cos2

Cos = +1 ±

Cos = Cos

= 2n ±

S9. Ans. (b)

Sol.

tan + tan2 + tan3 = tan

tan6

6 = n

S10. Ans. (b)

Sol.

tan ± =2

tan=1

±

**LEVEL-II**

Q1. The period of is

(a)

(b)

(c)

(d) None of these

L3Difficulty3

Qtag Mathematics

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Q2. Period of is

(a)

(b)

(c) 2

(d) None of these

L3Difficulty3

Qtag Mathematics

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Q3. Period of is

(a)

(b)

(c)

(d)

L3Difficulty3

Qtag Mathematics

Qcreator Pagemaker10

Q4. Period of is

(a)

(b) 2

(c)

(d)

L3Difficulty3

Qtag Mathematics

Qcreator Pagemaker10

Q5. Period of is

(a)

(b)

(c)

(d) 2

L3Difficulty3

Qtag Mathematics

Qcreator Pagemaker10

Q6. In a triangle and how many such triangles are possible

(a) 1

(b) 0

(c) 2

(d) Infinite

L3Difficulty3

Qtag Mathematics

Qcreator Pagemaker10

Q7. If in a triangle then angle is equal to

(a) 90°

(b) 45°

(c) 30°

(d) 60°

L3Difficulty3

Qtag Mathematics

Qcreator Pagemaker10

Q8. In a if and then

(a)

(b)

(c)

(d)

L3Difficulty3

Qtag Mathematics

Qcreator Pagemaker10

Q9. If the angles of a triangle be in A.P., then

(a)

(b)

(c)

(d)

L3Difficulty3

Qtag Mathematics

Qcreator Pagemaker10

Q10. In triangle

(a)

(b)

(c)

(d)

L3Difficulty3

Qtag Mathematics

Qcreator Pagemaker10

**Solutions**

S1. Ans. (c)

Sol.

Period of

and period of

Hence period of is L.C.M. of and

S2. Ans. (b)

Sol.

Since Hence period =

S3. Ans. (c)

Sol.

Hence period =

S4. Ans. (c)

Sol.

It is obvious.

S5. Ans. (d)

Sol.

sin hence period = 2.

S6. Ans. (b)

Sol.

which is not possible.

S7. Ans. (a)

Sol.

from given data.

Hence

S8. Ans. (a)

Sol.

Hence

S9. Ans. (b)

Sol.

are in A.P. then angle

S10. Ans. (c)

Sol.

From expanding and collecting terms using projection rule, etc.

**LEVEL-III**

Q1. In

(a)

(b)

(c)

(d) None of these

L5Difficulty5

Qtag Mathematics

Qcreator Pagemaker10

Q2. If in a triangle then the value of is

(a) 6/25

(b) 8/25

(c) 10/25

(d) 24/25

L5Difficulty5

Qtag Mathematics

Qcreator Pagemaker10

Q3. If the sides of a triangle are in the ratio then the largest angle of the triangle will be

(a)

(b) 75°

(c) 90°

(d) 120°

L5Difficulty5

Qtag Mathematics

Qcreator Pagemaker10

Q4. In a triangle

(a)

(b)

(c)

(d) None of these

L5Difficulty5

Qtag Mathematics

Qcreator Pagemaker10

Q5. In a triangle with fixed base the vertex moves such that . If and denote the lengths of the sides of the triangle opposite to the angles and respectively, then

(a)

(b)

(c) Locus of point is an ellipse

(d) Locus of point is a pair of straight lines

L5Difficulty5

Qtag Mathematics

Qcreator Pagemaker10

Q6. If the sides of a right angled triangle be in A.P., then they will be in the ratio

(a) 1 : 2 : 3

(b) 2 : 3 : 4

(c) 3 : 4 : 5

(d) 4 : 5 : 6

L5Difficulty5

Qtag Mathematics

Qcreator Pagemaker10

Q7. In a if and then the triangle is

(a) Right angled

(b) Right angled isosceles

(c) Isosceles

(d) Obtuse angled

L5Difficulty5

Qtag Mathematics

Qcreator Pagemaker10

Q8. In a if then is

(a) 60°

(b) 120°

(c) 30°

(d) 45°

(e) 90°

L5Difficulty5

Qtag Mathematics

Qcreator Pagemaker10

Q9. In if then the values of and are

(a)

(b)

(c)

(d)

L5Difficulty5

Qtag Mathematics

Qcreator Pagemaker10

Q10. In

(a) a cos

(b)

(c)

(d)

L5Difficulty5

Qtag Mathematics

Qcreator Pagemaker10

**Solutions**

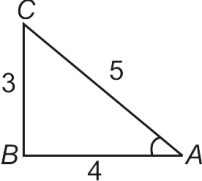
S1. Ans. (b)

Sol.

.

S2. Ans. (d)

Sol.

****

S3. Ans. (b)

Sol.

S4. Ans. (b)

Sol.

=

+

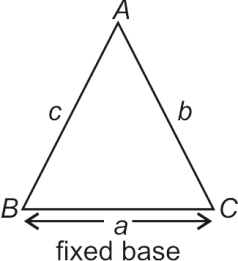
d

**Trick :** Student should use it as a fact.

S5. Ans. (b, c)

Sol.

as sin

****

Locus of point is an ellipse.

S6. Ans. (c)

Sol.

Let sides be and as it is a right angled triangle

Hence the sides are in ratio

**Trick :** 3, 4, 5 because it satisfy pythagorus theorem.

S7. Ans. (d)

Sol.

Hence obtuse angled triangle.

S8. Ans. (b)

Sol.

and

S9. Ans. (b)

Sol.

then and

**Trick :** Since the angles are 30°, 60°, 90°, therefore sides must be Hence .

S10. Ans. (b)

Sol.