ST. LAWRENCE HIGH SCHOOL

27, BALLYGUNGE CIRCULAR ROAD

Class : 10 **Subject : MATHEMATICS** **Term : SECOND TERM** **Max Marks : 80**

Q 1 : If 2 roots of the equation $3x^2 + 8x + 2=0$ are a and b then find the value of (1/a + 1/b) **Marks :** 1

1 . 4

2 . -4 (This Answer is Correct)

3 . 6

4 . 8

Q 2 : If sum of the roots of the equation $x^2 - x=k(2x-1)$ is zero.Find the value of k. **Marks :** 1

1 . 0

2 . (1/2)

3 . -0.5 (This Answer is Correct)

4 . 1

Q 3 : If sum and product of the roots are equal of the equation $kx^2 + 2x + 3k = 0$, then find the value of k **Marks :** 1

1 . (-2/3) (This Answer is Correct)

2 . (-3/2)

3 . (2/3)

4 . (3/2)

Q 4 : In 4 years the simple interest of certain sum of money is 9/25 of the principal. Find the annual rate of interest. **Marks :** 1

1 . 4%

2 . 9% (This Answer is Correct)

3 . 5%

4 . none of these

Q 5 : How much time will it take for an amount of Rs 450 to yield Rs 81 as interest at 4.5% p.a of simple interest. **Marks :** 1

1 . 4 yrs (This Answer is Correct)

2 . 5 yrs

3 . 10 yrs

4 . none of these

Q 6 : If length of each of 2 parallel chords AB and CD is 16 cm.Length of the radius of the circle is 10 cm. Find the distance between the chords **Marks :** 1

1 . 12 cm (This Answer is Correct)

2 . 15 cm

3 . 14 cm

4 . none of these

Q 7 : The centre of 2 concentric circles is o, a straight line intersects a cirle at the points A and B and the other at C and D.If AC=5 cm,then length of BD is **Marks :** 1

1 . 2.5 cm

2 . 3 cm

3 . 5 cm (This Answer is Correct)

4 . none of these

Q 8 : The whole surface area of a cube is 256 sq cm. Find the volume of the cube. **Marks :** 1

1 . 512 cubic cm (This Answer is Correct)

2 . 216 cubic cm

3 . 64 cubic m

4 . 256 cubic cm

Q 9 : If p:q= 5:7, p-q= -4 then find the value of 3p+4q **Marks :** 1

1 . 68

2 . 78

3 . 70

4 . 86 (This Answer is Correct)

Q 10 : Calculate what term should be added to both terms of the ratio 2:5 to make the ratio 6:11 **Marks :** 1

1 . (5/8)

2 . (8/5) (This Answer is Correct)

3 . (3/5)

4 . none of these

Q 11 : a is a positive number and if a: 27/64=3/4:a. then value of a is **Marks :** 1

1 . (9/16) (This Answer is Correct)

2 . (16/9)

3 . (8/16)

4 . (7/16)

Q 12 : If volume of 2 right circular cylinder are same and their height are in the ratio 1:2, then the ratio of length of radii is **Marks :** 1

1 . √2:3

2 . √2:1 (This Answer is Correct)

3 . 2:01

4 . none of these

Q 13 : If the numerical values of the volume and lateral surface area of a right circular cylinder are equal then the length of diameter of cylinder is **Marks :** 1

1 . 2 units

2 . 6 units

3 . 8 units

4 . 4 units (This Answer is Correct)

Q 14 : If volume of 2 right circular cylinder are same and their height are in the ratio 1:2, then the ratio of length of radii is **Marks :** 1

1 . √2:3

2 . √2:1 (This Answer is Correct)

3 . 2:01

4 . none of these

Q 15 : If the ratio of curved surface areas of 2 solid spheres is 16:9, the ratio of their volume is **Marks :** 1

1 . (27:64)

2 . (9:64)

3 . (64:27) (This Answer is Correct)

4 . none of these

Q 16 : If the ratio of the volumes of 2 spheres is 1:8, then the ratio of curved surface area is **Marks :** 1

1 . (2:3)

2 . (4:1)

3 . (2:7)

4 . (1:4) (This Answer is Correct)

Q 17 : Pallavi has invested Rs 500 for 9 months and shreya has invested Rs 600 for 5 months, then ratio of their profit is **Marks :** 1

1 . (2:3)

2 . (4:3)

3 . (3:4)

4 . (3:2) (This Answer is Correct)

Q 18 : The lengths of radii of two circles are 5 cm and 3 cm .The 2 circles touch each other externally.The distance between 2 centres is **Marks :** 1

1 . 7 cm

2 . 6 cm

3 . 8 cm (This Answer is Correct)

4 . none of these

Q 19 : If the ratio of the volumes of 2 right circular cones is 1:4 and the ratio of their radii is 4:5, then the ratio of their height is **Marks :** 1

1 . (64:25)

2 . (25:64) (This Answer is Correct)

3 . (8:5)

4 . (5:8)

Q 20 : The height of a right circular cone is 12 cm and its volume is 100 Π cubic cm .Find length of the radius. **Marks :** 1

1 . 4 cm

2 . 5 cm (This Answer is Correct)

3 . 6 cm

4 . none of these

Q 21 : In DEF triangle, P and Q are 2 points on DE and DF. DP= 5 cm, DE=15 cm, DQ= 6 cm and QF=18 cm. Then **Marks :** 1

1 . PQ =EF

2 . PQ is parallel to EF

3 . PQ is not equal to EF

4 . PQ is not parallel to EF (This Answer is Correct)

Q 22 : In ABC and DEF triangle AB, BC,AC are corresponding sides of DE,EF, DF respectively. Triangle ABC is similar to DEF. AB= 9 cm, BC= 6 cm, AC=7.5 cm and EF=8 cm. find DE **Marks :** 1

1 . 12 cm (This Answer is Correct)

2 . 10 cm

3 . 14 cm

4 . none of these

Q 23 : AD= x+3, BD= 3x+19 , AE=x, EC= 3x +4 in triangle ABC where DE is parallel to BC. Find x. **Marks :** 1

1 . 4

2 . 3

3 . 1

4 . 2 (This Answer is Correct)

Q 24 : By melting a right circular cone a solid right circular cylinder of same radius is made whose height is 5 cm. The height of the cone is **Marks :** 1

1 . 10 cm

2 . 15 cm (This Answer is Correct)

3 . 12 cm

4 . none of these

Q 25 : The base radius of a solid right circular cone is equal to the length of the radius of a solid sphere. If the volume of the sphere is twice of that of the cone , then write the ratio of height and base radius of cone. **Marks :** 1

1 . 2:01 (This Answer is Correct)

2 . 1:02

3 . 2:03

4 . none of these

Q 26 : The circular value of the supplementary angle of the measure 3Π/8 is **Marks :** 1

1 . 5Π/8 (This Answer is Correct)

2 . 5Π/9

3 . 5Π/ 6

4 . none of these

Q 27 : In a cyclic quadrilateral ABCD, If angle A=120° then circular value of angle C is **Marks :** 1

1 . Π/8

2 . Π/3 (This Answer is Correct)

3 . Π/4

4 . none of these

Q 28 : If sin 3A=cos (A-26°) where 3A is a positive acute angle, then value of A is **Marks :** 1

1 . 30°

2 . 29° (This Answer is Correct)

3 . 58°

4 . none of these

Q 29 : If cos 2θ= sin 4θ where 2θ and 4θ are 2 positive angles. The value of θ is **Marks :** 1

1 . 15° ☑ (This Answer is Correct)

2 . 30°

3 . 60°

4 . none of these

Q 30 : Find: sec²45° - cot² 45°- sin²30° - sin²60° **Marks :** 1

1 . 3

2 . 0 ☑ (This Answer is Correct)

3 . 1

4 . none of these

Q 31 : If x tan30°+ y cot 60°=0 and 2x - y tan45°=1, find values of x and y **Marks :** 1

1 . x=1/3,y=-1/3 ☑ (This Answer is Correct)

2 . x=-1/3, y= 1/3

3 . x=1/2,y=-1/2

4 . none of these

Q 32 : Find the angle of elevation of the sun when the shadow of a pole of 18m height is $6\sqrt{3}$ m long. **Marks :** 1

1 . 45°

2 . 60° ☑ (This Answer is Correct)

3 . 30°

4 . none of these

Q 33 : If the mean of the numbers 6,7,x ,8,y is 9 then **Marks :** 1

1 . x+y=24 ☑ (This Answer is Correct)

2 . x+y=19

3 . x-y=21

4 . x-y=19

Q 34 : If no of terms is 14 in a distribution, then median is **Marks :** 1

1 . 7th term

2 . 1/2(6th term + 7th term)

3 . 1/2(7th term +8th term) (This Answer is Correct)

4 . 8th term

Q 35 : The root of $x^2/x=6$ is/are **Marks :** 1

1 . 0

2 . 6

3 . 0and 6 (This Answer is Correct)

4 . -6

Q 36 : The equation $4(5x^2 - 7x +2)= 5(4x^2 -6x+3)$ is a____equation **Marks :** 1

1 . linear (This Answer is Correct)

2 . quadratic

3 . 3rd degree

4 . none of these

Q 37 : The lengths of 2 chords AB and CD of a circle with centre o are equal . Angle AOB=60°.Find angle COD **Marks :** 1

1 . 40°

2 . 60° (This Answer is Correct)

3 . 30°

4 . none of these

Q 38 : The length of the radius of a circle is 13 cm and the length of a chord of a circle is 10 cm .find the distance of the chord from the centre. **Marks :** 1

1 . 10 cm

2 . 11 cm

3 . 9cm

4 . 12cm (This Answer is Correct)

Q 39 : If the length, breadth and volume of a cuboidal room are 8m, 6 m and 192 cubic m respectively. Calculate the height of the room. **Marks :** 1

1 . 4m (This Answer is Correct)

2 . 7m

3 . 9m

4 . none of these

Q 40 : Find the mean proportional of 0.5 and 4.5 **Marks :** 1

1 . 0.15

2 . 1.5 (This Answer is Correct)

3 . 0.015

4 . none of these

Q 41 : In case of compound interest **Marks :** 1

1 . principal may be equal or unequal each year

2 . principal remains unchanged each year

3 . principal changes each year (This Answer is Correct)

4 . none of these

Q 42 : The compound interest is _____simple interest for one year at a fixed rate of interest on fixed sum of money. **Marks :** 1

1 . equal to (This Answer is Correct)

2 . greater than

3 . less than

4 . none of these

Q 43 : If the line segment joining 2 points subtends equal angles at 2 other points on the same side, then points are known as ___ **Marks :** 1

1 . concurrent

2 . concyclic (This Answer is Correct)

3 . collinear

4 . none of these

Q 44 : If 2 angles on the circle formed by 2 arcs are equal then length of the arcs are___ **Marks :** 1

1 . not equal

2 . may be equal or may not be

3 . equal (This Answer is Correct)

4 . none of these

Q 45 : The base area of a closed cylindrical water tank is 616 sq m ,find the diameter of the tank. **Marks :** 1

1 . 28 m (This Answer is Correct)

2 . 28cm

3 . 14 m

4 . 12 m

Q 46 : simplify: √108 - √75 **Marks :** 1

1 . √2

2 . √3 (This Answer is Correct)

3 . √5

4 . √7

Q 47 : If √6 x √15= x √10, find x **Marks :** 1

1 . 3 (This Answer is Correct)

2 . 5

3 . 7

4 . none of these

Q 48 : If (√5+√3)(√5-√3) = 25 - x², find x **Marks :** 1

1 . √21

2 . √27

3 . √23 (This Answer is Correct)

4 . none of these

Q 49 : 5√11 is a ____number. **Marks :** 1

1 . whole

2 . irrational (This Answer is Correct)

3 . rational

4 . none of these

Q 50 : If opposite angles of any quadrilateral are supplementary , then the vertices of the quadrilateral are **Marks :** 1

1 . concurrent

2 . collinear

3 . concyclic (This Answer is Correct)

4 . none of these

Q 51 : If ABCD is a cyclic quadrilateral angle ADC=95° find angle ABC **Marks :** 1

1 . 80°

2 . 85° (This Answer is Correct)

3 . 100°

4 . none of these

Q 52 : Itersection point of all angle bisectors is known as **Marks :** 1

1 . orthocentre

2 . centroid

3 . circumcentre

4 . incentre (This Answer is Correct)

Q 53 : What is the length of the radius of the circumcircle of a right angled triangle with hypotenuse of 10 cm **Marks :** 1

1 . 5 cm (This Answer is Correct)

2 . 6 cm

3 . 5.5 cm

4 . none of these

Q 54 : If the ratio of curved surface areas of 2 hemisphere is 4:9 ,then the ratio of their lengths of radii **Marks :** 1

1 . (3:2)

2 . (2:3) (This Answer is Correct)

3 . (4:3)

4 . none of these

Q 55 : if x α y^2 and y=4 when x=8, if x=32 then find y **Marks :** 1

1 . 8 (This Answer is Correct)

2 . 6

3 . 4

4 . none of these

Q 56 : If xα y , yαz , zαx then product of 3 nonzero constants is **Marks :** 1

1 . 1 (This Answer is Correct)

2 . 0

3 . (1/2)

4 . none of these

Q 57 : if x α 1/y then **Marks :** 1

1 . x=1/y

(This Answer is Correct)

2 . xy= non-zero constant

3 . y=1/x

4 . xy=1

Q 58 : The length of radius of a circle with centre o is 5 cm. P is a point at the distance of 13 cm from the point o. Find the length of the tangent PQ **Marks :** 1

1 . 15 cm

2 . 12 cm (This Answer is Correct)

3 . 10 cm

4 . none of these

Q 59 : If in two triangles, an angle of one triangle is equal to an angle of another triangle and the adjacent sides of the angle are proportional, then two triangles **Marks :** 1

1 . similar (This Answer is Correct)

2 . congruent

3 . both (i) and (ii)

4 . none of these

Q 60 : find: sin 53° cos 37° + cos 53° sin 37°=_____ **Marks :** 1

1 . 2

2 . 0

3 . 1 (This Answer is Correct)

4 . none of these

Q 61 : Find : sin(70°+θ) - cos (20°-θ)=_____ **Marks :** 1

1 . 0 (This Answer is Correct)

2 . 1

3 . 2

4 . none of these

Q 62 : The median of a given set of data can be found from **Marks :** 1

1 . frquency polygon

2 . histogram

3 . ogive (This Answer is Correct)

4 . none of these

Q 63 : The median of 8, 15, 10, 11, 7, 9, 11, 13,16 **Marks :** 1

1 . 12

2 . 15

3 . 10

4 . 11 ☑ (This Answer is Correct)

Q 64 : Third proportion of 9pq and 12 pq^2 is **Marks :** 1

1 . $16pq^3$ ☑ (This Answer is Correct)

2 . $16\ p^2q^2$

3 . 16 pq

4 . none of these

Q 65 : If 8:y::2:21, then value of y is **Marks :** 1

1 . 48

2 . 64

3 . 84 ☑ (This Answer is Correct)

4 . 80

Q 66 : In any right angled triangle the area of the square drawn on the hypotenuse is equal to the _____ of the areas of the squares drawn on other 2 sides. **Marks :** 1

1 . sum ☑ (This Answer is Correct)

2 . product

3 . difference

4 . none of these

Q 67 : A person goes 24 m west from a place and then he goes 10m north. The distance of the person from starting point is **Marks :** 1

1 . 26 m ☑ (This Answer is Correct)

2 . 20 m

3 . 22 m

4 . none of these

Q 68 : If the area of one surface of cube be 4 times the surface of another cube, then how many times will be the volume of the first cube that of the second cube. **Marks :** 1

1 . 6 times

2 . 4 times

3 . 8 times ☑ (This Answer is Correct)

4 . none of these

Q 69 : If x, 12, y, 27 are in continued proportion . Find the poitive values of x and y **Marks :** 1

1 . y=8,x=18

2 . y=18, x=6

3 . y=18, x=8 (This Answer is Correct)

4 . none of these

Q 70 : In isosceles triangle ABC,AB=AC. a circle is drawn taking AB as diameter,the circle meets the side BC at point D. If BD= 4 cm ,find CD. **Marks :** 1

1 . 4cm (This Answer is Correct)

2 . 8cm

3 . 6cm

4 . none of these

Q 71 : Two chords AB and AC are mutually perpendicular to each other, if AB=4 cm and AC= 3 cm ,find the radius of the circle. **Marks :** 1

1 . 5 cm

2 . 6 cm

3 . 10 cm

4 . 2.5 cm (This Answer is Correct)

Q 72 : If $b\alpha a^3$ and a increases in the ratio 2:3 . Find out the ratio in which b will be increased. **Marks :** 1

1 . (27/8)

2 . (9/23)

3 . (8/27) (This Answer is Correct)

4 . none of these

Q 73 : In a partnership business Alok and Raju have invested in the ratio 5:4 , if Raju gets Rs 80 as profit .Find total profit **Marks :** 1

1 . Rs 144 (This Answer is Correct)

2 . Rs 135

3 . Rs 120

4 . none of these

Q 74 : Two circles touch each other externally at th point C.A direct common tangent touches 2 circles at the point A and B respectively. Find angle ACB is **Marks :** 1

1 . 90° (This Answer is Correct)

2 . 60°

3 . 45°

4 . none of these

Q 75 : keeping radius of right circular cone same if height of it is increased twice then volume of it will be increased by **Marks :** 1

1 . 50%

2 . 200%

3 . 100% (This Answer is Correct)

4 . none of these

Q 76 : in triangle ABC, AB= 5 cm , BC= 4 cm , AC= 7 cm , angle ABC=85°, angle BCA=40°. In triangle PQR, PQ= 8 cm, PR= 10 cm and QR= 14 cm , Find angle RPQ **Marks :** 1

1 . 40°

2 . 55°

3 . 85° (This Answer is Correct)

4 . none of these

Q 77 : Write the circular value of an angle formed by the end point of hour hand of a clock in 1 hour rotation **Marks :** 1

1 . Π/3

2 . Π/2

3 . Π/6 (This Answer is Correct)

4 . none of these

Q 78 : If x sin 45° cos 45° tan60°= tan45°- cos 60° **Marks :** 1

1 . x=1/3

2 . x= -1/√3

3 . x=1/√3 (This Answer is Correct)

4 . none of these

Q 79 : The distance between 2 pillars of the lengths 16 m and 9 m is x m.If 2 angles of elevation of their respective top from the bottom of the other are complementary angles. Find the value of x. **Marks :** 1

1 . 18 m

2 . 20 m

3 . 21 m

(This Answer is Correct)

4 . 12 m

Q 80 : If the length of a rhombus are 12 cm and 16 cm respectively, then write the length of one side of the rhombus. **Marks :** 1

1 . 14 cm

2 . 8 cm

3 . 6 cm

4 . 10 cm (This Answer is Correct)
