

India's Number 1 Education App

MATHS

AIMED AT STUDENTS PREPARING FOR IIT JEE EXAMINATION

RATE MEASUREMENT

Lecture Sheet Excrcise 1 Straight Objective Type Questions

Answer: C

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2. A particle moves along a line by $s=rac{1}{3}t^2+8t+5$, it changes its direction when

B.
$$t = 2, t = 4$$

$$C.t = 0, t = 4$$

$$D.t = 2, t = 3$$

Answer: B

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3. A particle moves along a line by $s = t^3 - 9t^2 + 24t$. Then S is decreasing when t \in

A. (2,4) B. $(-\infty,2)\cup(4,\infty)$ C. $(-\infty,2)$ D. $(4,\infty)$

Answer: A



4. A particle 'p' moves along a straight line away from a point 'O' obeying the relation S = $16 + 48t - t^3$. The direction of 'P' after t = 4 is

A. is towards 'O'

B. is away from 'O'

C. is at rest

D. is at 'O'

Answer: A



5. A stone is thrown vertically up and the height s reached in time t is given by $s = 80t - 16t^2$. The stone reaches the maximum height in time t =

A. 2 sec

B. 2.5 sec

C. 3 sec

D. 3.5 sec

Answer: B

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6. An angle is increasing at a constant rate. The rate of increase of tan when the angle is $\pi/3$ is

A. 4 C

B. 6 C

C. 8 C

D. 2 C

Answer: A



7. The point pis moving with uniform velocity valong a straight line AB. O is point on a perpendicular to AB at A and distance l from it. The angular velocity of pabout O is

A.
$$\frac{lv}{op}$$

B. $\frac{lv}{op^2}$
C. $\frac{lv^2}{op}$
D. $\frac{op^2}{lv}$

Answer: B



8. The motion of a particle along straight line is given by $v^2 = u^2 + 90s$. If the particle starts from rest, then the acceleration is

A. 15 $unit/sec^2$

B. 30 $units/sec^2$

C. 45 units/ \sec^2

D. 75 units/ \sec^2

Answer: C



9. A particle moves along a straight line and its velocity at a distance 'x' from the origin is $k\sqrt{a^2-x^2}$. Then accelertion of the particle is

A. k

 $\mathsf{B.}-k^2$

C. kx

 $\mathsf{D}. - k^2 x$

Answer: D



10. The position of a point in time 't' is given by x = 1 + 2t + $3t^2$ and $y = 2 - 3t + 4t^2$. Then

its acceleration at time 't' is

A. 10

B. 12

C. 13

D. 15

Answer: A



11. A particle is moving on a straight line so that its distance s from a fixed point at any time t is proportional to t^n . If v be the velocity and 'a' the acceleration at any time , then $\frac{nas}{n-1}$ equals

A. v

 $\mathsf{C}.\,v^3$

D. 2v

Answer: B



12. The area of an equilateral triangle of side 'a'

feet is increasing at the rate of 4 sq.ft/sec. The

rate at which the perimeter is increasing is

A.
$$\frac{3\sqrt{8}}{2}$$



Answer: B



13. A variable triangle is inscribed in a circle of radius R. If the rate of change of a side is R times the rate of change of he opposite angle, then the opposite angle is

A. $\frac{\pi}{6}$ B. $\frac{\pi}{4}$ C. $\frac{\pi}{3}$ D. $\frac{\pi}{2}$

Answer: C



14. At a given instant, the sides OA and OB of a right angled triangled AOB are 8 cm and 6 cms respectively If OA increases at the rate of

2cm/sec and OB decreases at the rate of 1

cm/sec, the rate of decreases of the area of

 ΔAOB after 2 seconds is

A. 2 sq cm/sec

B.1 sq cm/sec

C. 3 sq cm/sec

D. 4 sq cm/sec

Answer: A

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15. A ladder AB of 10 mts long moves with its ends o the axes. When the end A is 6 mts form the origin. It moves away from it at 2mts/minute. The rate of increase of the area of the ΔOAB is

A.
$$\frac{4}{3}$$

B. $\frac{8}{3}$
C. $\frac{14}{3}$
D. $\frac{7}{2}$

Answer: D



16. A kite flying at a height 'h' mts has "x" meters of string paid out at a seconds. If the kite moves horizontally with constant v mts/sec. Then the rate at which the string is paid out is

A.
$$rac{\sqrt{x^2-h^2}}{v}mt/\sec$$

B.
$$\sqrt{x^2-h^2}mt/\sec$$

C.
$$rac{v\sqrt{x^2-h^2}}{x}mt/\sec$$

D.
$$rac{\sqrt{x^2-h^2}}{h}mt/\sec$$

Answer: C



17. A person of height 180 cm starts from a lamp post height 450 cm and walks at the constant rate of 4 km per hour. Find the rate at which his shadow increases.

A. 2 kmph

B. 6.4 kmph

C. 8/3 kmph

D. 4kmph

Answer: C

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18. Two ships A and B are sailing away from a point O along routes such that $\angle AOB$ is always 120° . At a certain instance, OA = 8 KM OB = 6km and the ship A is sailing at the rate of 20 km/hr while the ship B sailing at the rate of 30km/hr while the ship B sailing at the rate

of 30 km/hr. Then the distance between A and

B is changing at the rate (in km/hr)

A.
$$\frac{260}{\sqrt{37}}$$

B. $\frac{260}{37}$
C. $\frac{80}{\sqrt{37}}$
D. $\frac{80}{37}$

Answer: A



19. The two equal sides of an isoceles triangle with fixed base b are decreasing at the rate of 3cm /s. How fast is the tea decreasing when the two equal to the base ?

A. $\sqrt{3}bcm^2/s$

B. $\sqrt{3}bcm^2/s$

C.
$$\sqrt{rac{3}{2}} cm^2/s$$

D.
$$\sqrt{3}b^2cm^2\,/\,s$$

Answer: A



20. Let x be the length of one of the equal sides of an isosceles triangle, and let θ be the angle between them. If x is increasing at the rate (1/12) m/h/ and θ is increasing at the rate of $\pi/180$ radians/h then the rate in m^2/h at which the area of the triangle whe x = 12m and $\theta = \pi/4$

A.
$$\sqrt{3}\left(\frac{\pi}{5} + \frac{1}{2}\right)$$

B. $\sqrt{2}\left(\frac{\pi}{5} + \frac{1}{2}\right)$

$$\mathsf{C}.\left(\frac{\pi}{5} + \frac{1}{2}\right)$$
$$\mathsf{D}.\sqrt{2}\left(\frac{\pi}{5} + \frac{1}{5}\right)$$

Answer: B



21. The rate of change of area of a square plate is equal to that of the rate of change of its perimeter. Then length of the side is

A. 2 units

B. 3 units

C. 4 units

D. 6 units

Answer: A

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22. Two parallel sides of a rectangle are being lenghtened at the rate of 2 cm/sec while the other two sides are shortened in such a way the area of the rectangle is 50 sq. cm The rate

of change of the perimeter when the length of

an increasing side 5 cm is

A. 2 cm/sec

B. 6 cm/sec

$$\mathsf{C.} - 2c \frac{m}{\mathrm{sec}}$$

$$\mathsf{D.}-4c\frac{m}{\mathrm{sec}}$$

Answer: D



23. A point on the parabola $y^2 = 18x$ at which the ordinate increases at twice the rate of the abscissa is

A. (2,4)

B. (9/8,9/2)

C. (-9/8,9/2)

D. (2,-4_

Answer: B



24. Two cars started from a plane one moving due east and the other due north with equal speed V. Then the rate at which they were being seperated from each other is



Answer: D



25. If a metallic circular plate of radius 50 cm is heated s that its radius increases at the rate of 1 mm per hour, then the rate at which, the area of the plate increases $(incm^2/hour)$ is

A. 5π

 $\mathsf{B.}\,10\pi$

C. 100π

D. 50π

Answer: C



26. A stone is dropped into a quiet pond and waves move in circles outward from the place where it strikes, at a speed of 30 cm per second. At the instant when the radius of the wave ring is 50 m, the rate of increases in the area of the wave ring is

A. 0.75π sq.cm/sec

B. 30 sq.cm/sec

C. 30π sq.m/sec

D. 0.4π sq.cm/sec

Answer: C

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27. A is a fixed point on the circumference of a circle with centre 'O' and radius 'r', A particle starts at A and moves on the circumference with an 4 radian/sec. If PM is perpendicualar

to OA and $alg \leq POM$ = $\pi/3$, then the rate

at which of ΔPOM decreases is

A.
$$rac{r^2}{2}$$
 sq.cms/sec

B.
$$r \text{ cms/sec}$$

C.
$$rac{3r^2}{2}$$
 sq.cms/sec

D.
$$2r^2$$
 sq.cms/sec

Answer: B



28. If k is the diameter of a circle and A is the area of a sector of the circle whose vertical angle is θ then $\frac{dA}{dt}$ =

A.
$$\frac{k^2}{8} \left(\frac{d\theta}{dt}\right)$$

B.
$$\left(\frac{k^2}{4}\right) \left(\frac{d\theta}{dt}\right)$$

C.
$$\frac{d\theta}{dt}$$

D.
$$k \left(\frac{d\theta}{dt}\right)$$

Answer: A

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29. A point p moves with an angular velocity 2 radians/sec on the circumference of a circle with cente O and radius 2cms. PM is perpendicular to the diameter of the circle such that $\angle POM = \theta$. If the velocity of the point M is zero, then values of θ are

A. 0, π

B.
$$\frac{\pi}{2}, \pi$$

C. $\frac{\pi}{3}, \frac{\pi}{6}$
D. $\frac{\pi}{4}, \frac{3\pi}{4}$

Answer: A



30. The side of a cube is equal to the radius of a shpere. If the side and the radius increase at the same rate, then the relation between the rates of change of surface areas of the cube and sphere respectively is

A. <

C. =

D. \geq

Answer: A



31. The volume of metallic hallow sphere is constant. If the order radius is increasint at thed rate of V cm/sec. Then the rate at which the inner radius increasing when the radii are a+d,a is


- C. V(a+d)
- D. a+d

Answer: A



32. If the surface area of a sphere of radius r is increasing uniformly at the rate cm^2/s , then the rate of change of its volume is :

A. costant

B. proportional to \sqrt{r}

C. proportional to r^2

D. proportional to r

Answer: D

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33. A spherical ballon is being inflated at the rate of 35cc/min. The rate of increases in the

surface area $({
m in} cm^2 {
m min})$ of the ballon when

its diameter is 14 cm, is :

A. 10

B. $\sqrt{10}$

C. 100

D. $10\sqrt{10}$

Answer: A



34. A spherical ballon is filled with 4500π cubic meters of helium gas. If a leak in the ballon cause the gas to escape at the ratio of 72π cubic meters per meters, then the rate (in meters per minute) at which the radius of the ballon decreases 49 minutes after the leakage bagan is

A. 2/9

B. 9/2

C.9/7

D. 7/9

Answer: A

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35. If the volume of a spherical ball is increasing at the rate of 4π cc/sec, then the rate of increases of its radius (in cm/sec), when the volume is 288π cc.

A.
$$\frac{1}{6}$$

B.
$$\frac{1}{9}$$

C. $\frac{1}{36}$
D. $\frac{1}{24}$

Answer: C

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36. A conical vesel of height 10 mts and radius 5 units.is being filled water at uniform rate of 3/2 cu.mts/min. The rate at which the level of water rises when the depth of water in the

vessle is 4mts is

A.
$$3\pi$$
 mts/min

B.
$$\frac{3}{4\pi}$$
 mts /min
C. $\frac{3}{8\pi}$ mts/min

D.
$$\frac{7}{2\pi}$$
 mts/min

Answer: C

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37. The slant height of a cone is fixed at 7cm. The rate of increase in the volume of the cone corresponding to the rate of increases of 0.3 cm/s in the hieght when h = 4cm is

A.
$$\frac{\pi}{10}$$
 c c/s
B. $\frac{3\pi}{10}$ c c/s
C. $\frac{\pi}{5}$ c c/s
D. $\frac{7\pi}{10}$ c c/s

Answer: A



38. The radius of the base of a cone is increasing at the rate of 3 cm/min and altitude is decreasing at the rate of 4 cm/min. The rate of change of lateral surface when the radius is 7 cm and altitude is 24 is

A. $180\pi cm^2$ / min

B. $7\pi cm^2$

C. $27\pi cm^2$ /min

D. $54\pi cm^2$ /min

Answer: A



39. The radius of a right circular cylinder increases at the rate of 0.1 cm/min. and the height decreases at the rate of 0.2 cm/min. The rate of change of the volume of the cylinder. In cm^3 /min. when the radius is 2 cm and the height is 3cm is

A.
$$-2p$$

$$B. - \frac{8\pi}{5}$$
$$C. - \frac{3\pi}{5}$$
$$D. \frac{2\pi}{5}$$

Answer: D



40. Assertion (A): The ordinate of a point describing the circle $x^2 + y^2 = 25$ decreases at the rate of 1.5 cm/s. The rate of change of the abscissa of the point when ordinate

equals 4 cm is 2 cm/s.

Reason (R) : x dx + y dy = 0

A. Both A and B true and R is the correct

explation of A

B. Both A and R are true and R is not the

correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: A

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Practice Sheet Exercise 1 Level 1 Straight Objective Type Question

1. If a particle moves along astraight line by $S=4t^2-8t+3$ and the time at which the particle comes of rest is 't' seconds then '2t' is

A. 2

B. 1

C. 4





2. The rate of change of sin t is n, then the rate of change of tan t is

A. n^2

- $\mathsf{B.1}/n^2$
- C. 1/n



Answer: B



3. A particle moves along a straight line according to the equation s = 8 cos 2t + 4sint. The initial velocity is

- A. -5 units/sec
- B.-4 units/sec
- C. 23^e units/sec
- D. 5 units/sec

Answer: C



4. An angle θ through which a pulley turns with time 't' is completed by $\theta = t^2 + 3t - 5$ sq. cms / min Then the angular velocity for t = 5 sec.

A. $5^e / \sec$

 $B.13^e / sec$

 $\mathsf{C.}\,23^e\,/\,\mathrm{sec}$

D. $35^e / \sec$

Answer: B

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5. A particle moves along a line by $s = \frac{t^3}{3} - 3t^2 + 8t$ then the distance travelled by the particle before if first comes to rest is

A. 20

B. 20/3

C. 3

D. 60

Answer: B



6. A particle 'p' moves along a straight line away from a point 'O' obeying the relation S = $16 + 48t - t^3$. The direction of 'P' after t = 4 is



 $\mathsf{B}.\overrightarrow{PO}$

C. Rest at the instant

D. Perpendicular to \overrightarrow{OP} .

Answer: B

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7. If the rate of change of sine and tangent of

the same angle are equal then the angle

A. velocity

B. displacement

C. initial velocity

 $\mathsf{D}.ae^t$

Answer: B



8. If the displacement in time t of a particle is given by $s = ae^t + be^{-t}$. Then the acceleration is equal to A. velocity

B. displacement

C. \in *itialvelocity*

 $\mathsf{D}. a(e)^t$

Answer: B



9. If the distance S travelled by a particle in time t is given by s = $t^2 - 2t + 5$ then its acceleration is

A. 0

B. 0

C. 2

D. 3

Answer: C

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10. The displacement of a particle in time 't' is

given by $S=t^3-t^2-8t=18.$ The

acceleration of the particle when its velocity

vanishes is

A. 15 units/ \sec^2

B. 10 units/ \sec^2

C. 5 units/ \sec^2

D. 20 units / \sec^2

Answer: B



11. A particle moves in a straight line according to the law v^2 = 4a (x sin x + cos x) wher v is the velocity of a particle at a distance x from the fixed point then the acceleration is

A. 2axsinx

B. axsinx

C. axcosx

D. 2axcosx

Answer: D



12. The distance moved by the particle in time 't' is given by $S = t^2 - 12t^2 + 6t + 8$. At the instant, when its acceleration is zero. The velocity is

A. 42

B. - 42

C. 48

D. - 48

Answer: B



13. A particle moves along the X-axis with velocity $v=rac{dx}{dt}=f(x)$ then the

acceleration of the particle is

A. f''(x)

B. f(x)

C. f(x), f(x)

D. f(x)

Answer: C



14. If the distance travelled by a particle is $x=\sqrt{pt^2+2qt+r}$ then the acceleration is

proportional to

A.
$$\frac{1}{x}$$
1
B. $\frac{1}{x^2}$
C. $\frac{1}{\sqrt{x}}$
D. $\frac{1}{x^3}$

Answer: D



15. If a particle moves along a line by $S = \sqrt{1+t}$ then its acceleration is proportional to _____ of its velocity at the instant.

A. square

B. cube

C. double

D. triple

Answer: B

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16. A particle moves on a line according to the law $s = at^2 + bt + c$. If the displacement after one second is 16 cm, the velocity after 2 second is 24 cm/sec and the acceleration is $8cm/\sec^2$. Then (a,b,c)

A. (4,8,6)

B. (4,4,8)

C. (8,4,4)

D. (8,8,4)

Answer: A

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17. A particle velocity v at time is given by $v=2e^{2t}rac{\cos(\pi t)}{3}.$ The least value of t at which

the acceleration becomes zero is

A. 0

B.
$$\frac{3}{2}$$

C. $\frac{3}{\pi} \frac{\tan^{-1}(6)}{\pi}$
D. $\frac{3}{\pi} \frac{\cot^{-1}(6)}{\pi}$

Answer: C



18. Each side of an equilateral triangle expands at the rate of 2 cm/sec. The rate of increase of its area when each side is 10 cm is (in cm^2 /sec)

A. $10\sqrt{2}$ sq.cms/sec

B. $10\sqrt{3}$ sq.cms/sec

C. 10 sq.cms/sec

D. 5 sq.cms/sec

Answer: B



19. A variable triangle ABC is inscribed in a circle of diameter x units. At a particular instant the rate of change of side 'a' is x/2 time

the rate of change of the opposite angle A

then A =

- A. $\pi/2$
- B. $\pi/3$
- C. $\pi/4$
- D. $\pi/6$

Answer: B



20. An aeroplane is flying horizontally at an altitude of 3000 ft directly over an observer. If it is flying with a speed of 300 ft/sec, the rate at which it is moving away from the observe when it is at 5000 ft away from the observer is

A. 200 ft/sec

B. 220 ft/sec

C. 240 ft/sec

D. 260 ft/sec

Answer: C

21. A source of light is hung h mts. Directly above a straight horizontal path on which a boy a mts. In height is walking. If a boy walks at a rate of b mts/sec. from the light then the rate at which his shadow increasese.

A.
$$\displaystyle rac{ab}{h-a} mt/{
m sec}$$

B. $\displaystyle rac{ab}{h+a} mt/{
m sec}$
C. $\displaystyle rac{ab}{2(h-a)} mt/{
m sec}$

D.
$$rac{ab}{2(h+a)}mt/ ext{sec}$$

Answer: A

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22. If the rate of change in the perimeter of a square is K times the rate of change in its side then k =

A. 2

B. 3
C. 4

D. 1

Answer: C



23. The point of the ellipse $16x^2 + 9y^2 = 400$.

At which the ordinate decreases at the same rate at which the abscissa increases is

$$\mathsf{A}.\left(3,\,\frac{16}{3}\right)$$

$$B.\left(-3,\frac{16}{3}\right)$$
$$C.\left(3,\frac{-16}{3}\right)$$
$$D.\left(-4,\frac{-16}{3}\right)$$

Answer: A



24. A car starts from and attains the speed of 1 km/hr nad 2,ms/hr at the end of 1st and 2nd minutes. IF the car moves on straight road, the distance travelled in 2 minutes is

A.
$$\frac{1}{4}$$
 km
B. $\frac{1}{30}$ km

- C. 15 km
- D. 20 km

Answer: B

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25. A point is moving along $y^3 = 27x$. The interval in which the abscissa changes at slower rate than ordinate is

A. (-2,2)

B.
$$(-\infty,\infty)$$

$$C.(-1,1)$$

D.
$$(-\infty, -3) \cup (3,\infty)$$

Answer: C

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26. In a simple pendulum , if the rate of change in the time period is equal to the rate of

change in the length then the length of the

pendulum is

A.
$$\frac{\pi}{g}$$

B. $\frac{\pi^2}{g}$
C. $\pi^2 g$
D. πg^2

Answer: B



27. A point is moving on $y = 4 - 2x^2$. The x-coordinate of the point is decreasint at the rate of 5 units/sec. Then the rate at which y - coordinate of the point is changing when the point is at (1,2) is

A. 5 units/sec

B. 10unit/sec

C. 15unit/sec

D. 20unit/sec

Answer: D

28. At the point (2,3) on the curve $y = x^3 - 2x + 1$, the gradient of the curve increases

A. 6 times as fast as x

B. 10 times as fast as x

C. 12 times s fast as x

D. 8 times as fast as x

Answer: C

29. A point is moving along the cubical parabola $12y = x^3$. The rate of ordinate is less than the rate of abscissa when

A.
$$x < -2$$
 or $x > 2$

$$\mathsf{B.}\,x=~\pm\,2$$

 $\mathsf{C}.-2 < x < 2$

 $\mathsf{D}.\,x=~\pm\,4$

Answer: C

30. Moving along the x - axis there are two points with x = 10 + 6t, $x = 3 + t^2$, the speed with which they are reching from eachother at the time of encounter is (x is the cm and t is in seconds)

A. 16 cm/sec

B. 20 cm/sec

C. 8 cm/sec

D. 1 cm/sec

Answer: C

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31. The pressure p and the voluem v of a gas are connected by the relation pv = 300. If the volume is increasing at the rate of 0.6 cubic cm minute then the rate of change in pressure of the gas when the volume is 30 cubic cm is

A. 2 units/min

B. 0.2 unit/min

 $\mathsf{C}.-2$ unit/min

 ${\sf D.}-0.2$ unit/min

Answer: D

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32. A wheel rotates so that the angle of rotation is proportional to the square of the time. The first revolution was performed by

the wheel for 8 seconds the angular velocity at

this time is

- A. π rad/sec
- B. 2π rad/sec

C.
$$\frac{\pi}{2}$$
 rad/sec

D.
$$\frac{\pi}{3}$$
rad/sec

Answer: C



33. If the semivertical angle of a cone is 45° then the rate of change of volume of the cone is

A. curved area times the rate of change of r

B. base area times the rate of change of I

C. base area times the rate of change of r

D. base area times the rate of change of heta

Answer: C

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34. The volume of a ball increases at $2\pi c. c/\sec$. The rate of increase of radius when the volume is 288π c.cms is

A. 1/36 cm/sec

B. 1/72 cm/sec

C. 1/18 cm/sec

D. 1/9 cm/sec

Answer: B

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35. A ballon is in the shape of a cone surmounted by a semi sphere. The radius of a sphere is equal to the height of the cone. If the height of the ballon is 2 then the rate of change in its volume istimes the rate of change in its height.

A. 4π

B. 6π

C. 12π

D. 8π

Answer: C



36. The spherical ballon is being inflated so that its volume increases uniformly at the rate of 40 cubic cm per minute. The rate of increase in the surface as when the radius is 8 cm is

A. 5 sq.cm/min

B. 6 sq.cm/min

C. 10s sq.cm/min

D. 15 sq.cm/min

Answer: C



37. If the radius of a sphere ia equal to the height and radius of the cylinder then the ratio of the rates of increases of the volumes of the sphere and cylinder is

A. 4:3

B. 3:4

C. 4: 3π

D. $3\pi: 4$

Answer: A

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38. A rectangular vessel is of 2 mt long. 0.5 mt

breadth and I mt deep. If water flows in at rate

of 900 cubic cm per sec, then the rate of increase of water level when 25 cm deep is

A. 0.09 cm/sec

B. 0.1 cm/sec

C. 0.01 cm/sec

D. 0.5 cm/sec

Answer: A



39. The diameter and altitude of a right circular cylinder are found at a certain instant to be 20 cm and 40 cm repectively. It=f the diameter is increasing at the rate of 2 cm/sec then the rate of change in the altitude will keep the volume constant is

A. 2cm/sec

B. 4cm/sec

C. 6cm/sec

D.-8 cm/sec

Answer: D



40. Sand is being poured on the ground from the orifice of an elevated pipe and from a pile which has always the shape of a right circular cone whose height is equal to the radius of the base. If the sand if falling at the rate of 1000 cubic cm per, sec, the rate at which the height of the pile is rising when the height is 40 cm is

A. $5/8\pi$ cm/sec

B. $1/100\pi$ cm/sec

C. $5/12\pi$ cm/sec

D. $1/120\pi$ cm/sec

Answer: A

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41. Gas is leaking out of a spherical ballon at

the rate of 1800 cubic cm per sec. When the

radius of the ballon is 720 cm, the rate at

which the surface area is shrinking is

A. 5 sq.cm/sec

B. 6 sq.cm/sec

C. 10 sq.cm/sec

D. 15 sq.cm/sec

Answer: A

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42. Assertion (A): If S be the area of a circle having radius x and A the area of an euilateral triangle having side πx at any isntant, then $\frac{dA}{dt} > \frac{ds}{dt}$ Reason (R): A > S

correct explanation of A

B. Both A and R are true R is not the

correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: A

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43. Two cyclists move on two separate roads angle at 60° to each other at the rate of 5m/s and 10m/s respectively. The rate which they are separating from each other is

A. $5\sqrt{3}$ m/s

B. 5m/s

C. 10m/s

D. 20m/s

Answer: B

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