



## HOLIDAY HOMEWORK CLASS IX

### PHYSICS

Using the formulae and equations solve the following numericals.

1. A particle moves three quarters of a circle of radius  $r$ . What is the magnitude of displacement?
2. A car starts from rest and attains a velocity of 10 m/s in 40 seconds. The driver applies brakes and slows down the car to 5 m/s in 10 seconds. Find the acceleration of the car in both the cases.  
[Ans.  $0.25 \text{ m/s}^2$ ,  $-0.5 \text{ m/s}^2$ ]
3. An insect moves along a circular path of radius 10 cm with a constant speed. If it takes 1 minute to move from a point on the path to the diametrically opposite point, find
  - a) The distance covered
  - b) The speed
  - c) The displacement
  - d) The average velocity[Ans. a) 31.4 cm. b) 31.4 cm/min c) 20 cm d) 20 cm/min]
4. A body is moving uniformly with a velocity of 5 m/s. Find graphically the distance travelled by it in 5 second.  
[Ans. 25m]
5. A car is moving on a straight road with uniform acceleration. The following tables gives the speed of the car at various instant of time.

Time (s)	0	10	20	30	40	50
Speed (m/s)	5	10	15	20	25	30

- Draw the speed time graph choosing a convenient scale. Determine a) Acceleration of the car b) Distance travelled by car in 50 seconds. [ a) Ans.  $0.5 \text{ m/s}^2$  b) 8.75 m]
6. A body is accelerating at a constant rate of  $10 \text{ m/s}^2$ . If the body starts from rest, how much distance will it cover in 2 seconds. [Ans.  $S= 20 \text{ m}$ ]
  7. A car acquires a velocity of 72 km/h in 10 seconds starting from rest. Find a) The accn b) Average velocity c) Distance travelled. [Ans. 2 m/s, b) 10 m/s, c)  $s=100 \text{ m}$  ]
  8. The brakes applied to a car produces an acceleration of  $6 \text{ m/s}^2$  in the opposite direction to the motion. If the car takes 2 seconds to stop after applying brakes, calculate distance it travels during this time. [Ans. 12 m]
  9. A train travels the first 30 km of 120 km track with a uniform speed of 30 km/h. What would be the speed of the train to cover the remaining distance of the track so that its average speed is 60 km/h for the entire trip?  
[Ans. 90 km/h]
  10. Velocity time graph given shows the motion of a cyclist. Find a) Its acceleration b) Velocity c) Distance covered in 15 seconds.  
[Ans. a) 0 b) 20 m/s c) 300 m]

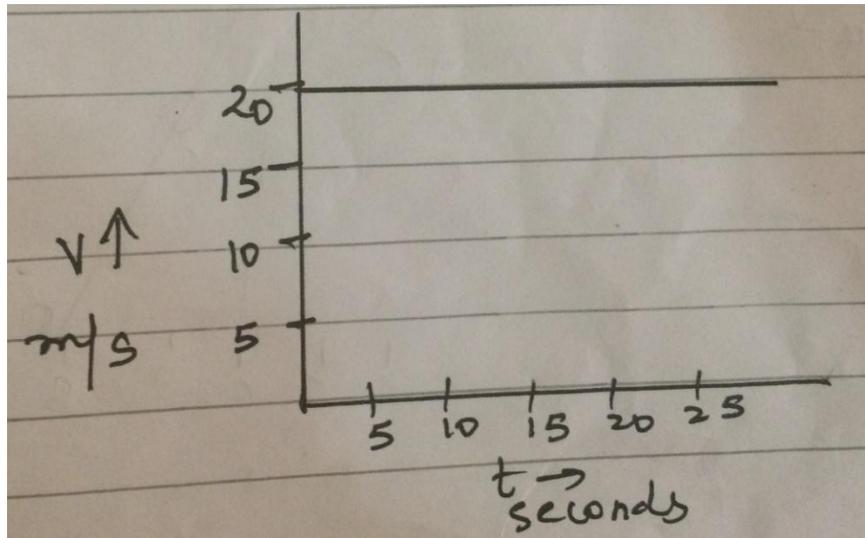


# CONVENT OF JESUS AND MARY

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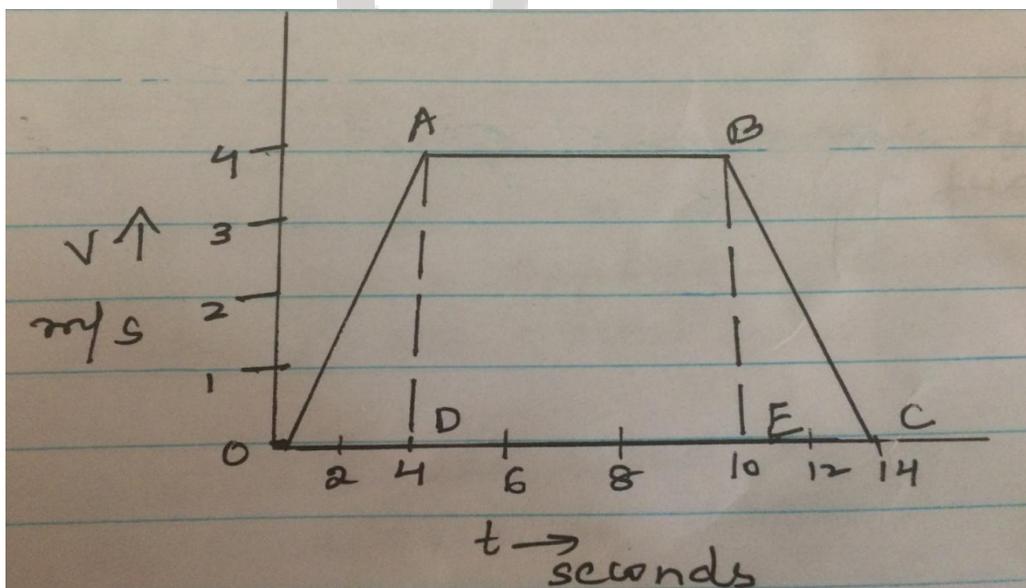
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11. A child drops a ball from a height of 10 m. Assume its velocity increases at the rate of  $10 \text{ m/s}^2$ . Find a) Velocity with which the ball strikes the ground b) Time taken by the ball to reach the ground.  
[Ans. a) 14.14 m/s B) 1.414 sec]

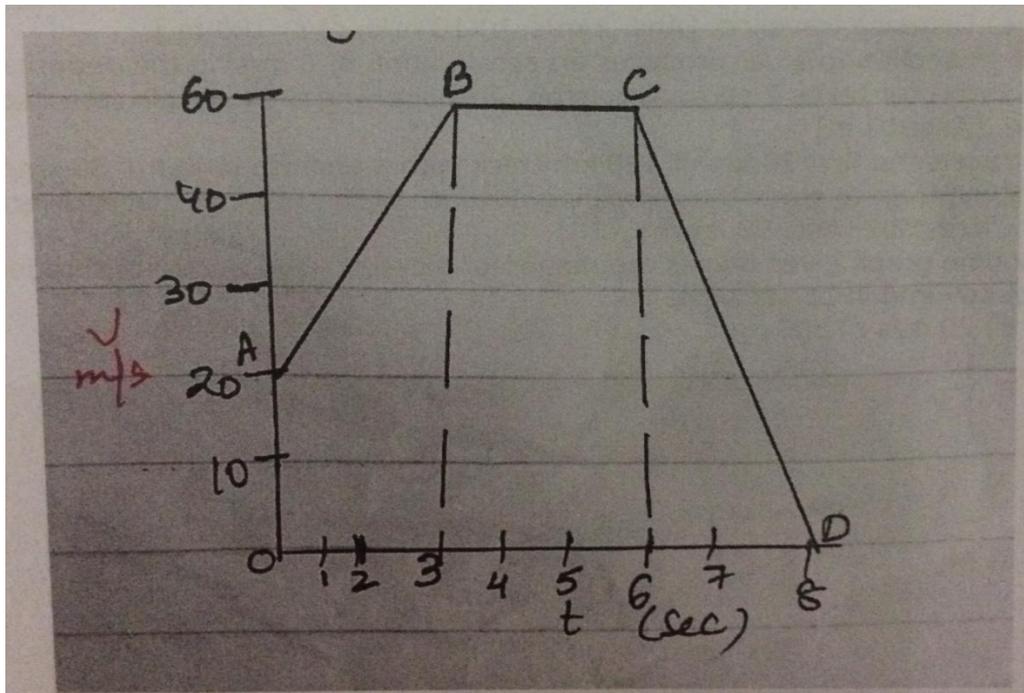
12. Velocity time graph for motion of body is shown below:

- a) Which part of the graph shows accelerated motion? Also calculate the accn. B) Which part of the graph shows retarded motion? Also calculate retardation c) Calculate the distance travelled by the body in first 4 seconds of the journey.





13. The following is v-t graph for a moving body.



Find a) Velocity with which the motion started? b) Velocity of body at point C c) Acc acting on the body between A and B d) Accn acting on the body between B and C.

14. A train is moving with an initial velocity of 30 m/s. The brakes are applied so as to produce a retardation of  $1.5 \text{ m/s}^2$ . Calculate the time in which it will come to rest. [Ans. 20 seconds]
15. The driver of a car travelling at 36 km/h applies the brakes to deaccelerate uniformly. The car stops in 10 seconds. Plot the speed-time graph for this period. Find the distance travelled by the car during this period by calculating the area under the graph. [Ans. 20m ]
16. A train is travelling with a velocity of 72 km/h. The brakes are applied to retard the motion of the train uniformly. If the train is stopped after 50 m away from the place where brakes were applied. Find the retardation of the train. [Ans.  $-4 \text{ m/s}^2$  ]
17. Calculate the speed of the tip of second's hand of a watch of length 1.5 cm. [Ans. 0.16 cm/s]
18. A cyclist goes once round on a circular track of diameter 105 m in 5 minute. Calculate his speed. [ $v= 1.1 \text{ m/s}$ ]
19. Differentiate between linear motion and circular motion.
20. Why uniform circular motion is known as an accelerated motion?
21. Do all numerical from Lakhmir Singh (Motion Chapter) \*



## **GERMAN**

1. Make a presentation on the topic 'Personal Pronomen' with their application rules together with examples. You may support your examples with pictures/ illustrations. Conclude your presentation with an exercise and its solutions.
2. Write & learn table given at Page No 142
3. Make a PPT on any 2 cities of Germany.
4. Do lessen given on page 32-35.
5. Do schreiben given on Page No. 36 on an A4 sheet.
6. Learn and write 2 new words with examples daily.

## **SOCIAL SCIENCE**

- Learn the chapters covered in the class and prepare five MCQ questions from each chapter.
- Write about the history of Indian elections on the basis of your visit to the Election museum. Write about the changes introduced in the process of elections.

## **ENGLISH**

1. Compulsory reader- Three Men in a Boat- Book 1, Quiz in July.
2. Any two books from the given list: Books by Arthur Hailey, Jeffrey Archer, Vikram Seth, Anita Desai, John Grisham.
3. Any classic- Jane Eyre, Wuthering Heights, Mill on the Floss & Night of January 16<sup>th</sup> by Ayn Rand.
4. Read newspaper daily and maintain a vocabulary list.
5. Book review- presentation in July.

## **COMPUTER SCIENCE**

On an A4 drawing sheets, write a short note on each of the following ( one on each sheet) :

- a) Malware
- b) Trojan horse
- c) Worm
- d) Spyware



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## MATHEMATICS

CLASS - VI, VII, VIII & IX (Holiday H.W)

### **MATHEMATICS SPELL BEE - 2017**

- |                   |                   |                |
|-------------------|-------------------|----------------|
| 1. PARALLEL       | 25. CONCENTRIC    | 48. DIAMETER   |
| 2. CORRESPONDING  | CIRCLES           | 49. VARIABLE   |
| ANGLES            | 26. THEOREM       | 50. POLYNOMIAL |
| 3. QUADRATIC      | 27. DENOMINATOR   | 51. MEAN       |
| 4. CONVERSE       | 28. DIAGONAL      | 52. MEDIAN     |
| 5. POLYHEDRON     | 29. DIVIDEND      |                |
| 6. CONSISTENCY    | 30. DIVISOR       |                |
| 7. ADJACENT       | 31. QUADRANT      |                |
| 8. ABSCISSA       | 32. QUADRATIC     |                |
| 9. ARBITRARY      | EQUATION          |                |
| 10. COEFFICIENTS  | 33. QUOTIENT      |                |
| 11. CARTESIAN     | 34. TRANSVERSAL   |                |
| 12. FIBONACCI     | 35. HYPOTENUSE    |                |
| 13. DIAGONAL      | 36. EQUIANGULAR   |                |
| 14. SUPPLEMENTARY | 37. BISECTOR      |                |
| 15. FREQUENCY     | 38. PROPORTION    |                |
| 16. MODULUS       | 39. EXPONENT      |                |
| 17. BINOMIAL      | 40. NUMERATOR     |                |
| 18. ALGORITHM     | 41. DENOMINATOR   |                |
| 19. CONVERSE      | 42. MONOMIAL      |                |
| 20. SUCCESSIVE    | 43. INTEGERS      |                |
| 21. CENTROID      | 44. RECIPROCAL    |                |
| 22. CIRCUMCENTRE  | 45. TRINOMIAL     |                |
| 23. COLLINEAR     | 46. CIRCUMFERENCE |                |
| 24. COMPLEMENTARY | 47. CONGRUENT     |                |
| ANGLES            |                   |                |



## CLASS - IX - MATHS - POLYNOMIALS (1)

Evaluate the following using the suitable identity.

(i)  $99^3$

(ii)  $1001^2$

(iii)  $105^3$

(iv)  $105 \times 108$

(v)  $94 \times 106$

(vi)  $107^3$

2. Factorise the following:

(i)  $x^2 + 2x - 63$

(ii)  $x^2 - x + 110$

(iii)  $6x^2 - 17x + 12$

(iv)  $4y^3 - 2y^2 - 4y + 2$

(v)  $2x^3 - 3x^2 - 17x + 30$

(vi)  $25y^2 + 110y + 121$

(vii)  $9x^2 - 48x + 64$

(viii)  $9x^2 - 12x + 3$

(ix)  $\left(4x - \frac{1}{5}\right)^2 - \left(x + \frac{1}{2}\right)^2$

(x)  $25x^2 + 36y^2 + 49z^2 + 60xy - 84yz - 70zx$

(xi)  $x^2 + 16y^2 + 64z^2 - 8xy - 64yz + 16zx$

(xii)  $4x^2 + 81y^2 + z^2 - 36xy + 18yz - 4zx$

(xiii)  $8 + 64x^3$

(xiv)  $a^3 - 3\sqrt{3}b^3$

(xv)  $8x^3 + 27y^3 + 36x^2y + 54xy^2$

(xvi)  $343a^3 - b^3 - 147a^2b + 21ab^2$

(xvii)  $2\sqrt{2}a^3 + 3\sqrt{3}b^3 + 6\sqrt{3}a^2b + 9\sqrt{2}ab^2$

(xviii)  $8a^3 - b^3 - 64c^3 - 24abc$

(xix)  $3\sqrt{3}a^3 + 27b^3 - c^3 + 9\sqrt{3}abc$

(xx)  $5a(x - 3y) - 3b(3y - x)$

(xxi)  $1 - 64a^3 - 12a + 48a^2$

[NCERT Exemplar]

(xxii)  $x^2 - y^2 + 2x + 1$

3. Simplify by factorisation method  $\frac{3 - 2\sqrt{3x} + x^2}{3 - x^2}$ .

4. If  $f(x) = x^2 - 5x + 1$ , evaluate  $f(2) - f(-1) + f\left(\frac{1}{3}\right)$ .

5. If  $p(x) = x^3 + 3x^2 - 2x + 4$ , find  $f(-2) + f(2) - f(0)$ .

6. Find the zeros of the polynomial in each of the following:

(i)  $p(x) = 2x - 3$

(ii)  $q(x) = 5 - 9x$

(iii)  $g(y) = 3y$

(iv)  $f(t) = t^2 - 2t$

(v)  $r(x) = (x - 2)^2 + (x + 2)^2$

(vi)  $h(x) = cx + d, c \neq 0, c, d$  are real numbers.

7. Determine which of the following polynomials has  $x - 4$  as a factor.

(i)  $2x^2 - 7x - 4$

(ii)  $2x^3 - 7x^2 - 39x + 60$

(iii)  $x^4 - 13x^2 + 36$

(iv)  $x^3 + 9x^2 + 11x - 15$

8. (i) If  $a + b + c = 9$  and  $ab + bc + ca = 26$ , find  $a^2 + b^2 + c^2$ .

(ii) If  $ab + bc + ca = 36$  and  $a^2 + b^2 + c^2 = 85$ , find  $a + b + c$ .

9. (i) Find  $x^2 + y^2$  if  $x + y = -14$  and  $xy = 84$ .

(ii) Find  $y^2 + \frac{1}{y^2}$  and  $y^4 + \frac{1}{y^4}$  if  $y - \frac{1}{y} = 9$ .

10. Find the value of

(i)  $8x^3 + y^3 - 30xy + 125$ , if  $2x + y = -5$ .

(ii)  $x^3 - 27y^3 + 27xy + 27$ , if  $x = 3y - 3$ .

Boyi  
12/4/19



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## HINDI

### कक्षा - 9

1. महादेवी वर्मा द्वारा रचित 'मेरा परिवार' कहानी संकलन पढ़ने के पश्चात किन्हीं पाँच कहानियों के मुख्य पात्रों के नाम व कहानी का सार अपनी पुस्तिका में लिखें।
2. प्रतिदिन हिन्दी समाचार-पत्र पढ़ें।
3. महादेवी वर्मा की अन्य प्रमुख रचनाओं के नामों की सूची बनाइए।  
(केवल नाम)

## SCIENCE (BIOLOGY)

Draw a well labelled diagram and write their identifying features in the practical file.

- Onion Peel
- Cheek cells
- Parenchyma
- Collenchyma
- Sclerenchyma
- Striped muscle
- Nerve Cells

## SPANISH

1. Find information on 'Los Alimentos' of Spain and 'los horarios de comidas' En Espana.
2. Revise vocabulary and verb conjugations.