

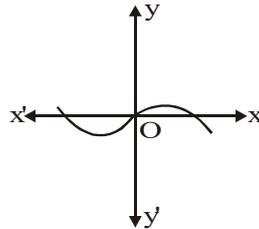
EXERCISE-3

(FOR SCHOOL/BOARD EXAMS)

PREVIOUS YEARS BOARD (CBSE) QUESTIONS

QUESTIONS CARRYING 1 MARK

1. Write the zeros of the polynomial $x^2 + 2x + 1$. [Delhi-2008]
2. Write the zeros of the polynomial, $x^2 - x - 6$. [Delhi-2008]
3. Write a quadratic polynomial, the sum and product of whose zeros are 3 and -2 respectively. [Delhi-2008]
4. Write the number of zeros of the polynomial $y = f(x)$ whose graph is given in figure. [AI-2008]



5. If $(x + a)$ is a factor of $2x^2 + 2ax + 5x + 10$, find a [Foreign-2008]
6. For what value of k , (-4) is a zero of the polynomial $x^2 - x - (2k + 2)$? [Delhi-2009]
7. For what value of p , (-4) is a zero of the polynomial $x^2 - 2x - (7p + 3)$? [Delhi-2009]
8. If 1 is a zero of the polynomial $p(x) = ax^2 - 3(a - 1)x - 1$, then find the value of a . [AI-2009]
9. Write the polynomial, the product and sum of whose zeros $-\frac{9}{2}$ and $-\frac{3}{2}$ respectively [Foreign-2009]
10. Write the polynomial, the product and sum of whose zeros are $-\frac{13}{5}$ and $-\frac{3}{5}$ respectively. [Foreign-2009]

QUESTIONS CARRYING 2 MARKS

11. Find the zeros of the quadratic polynomial $6x^2 - 3 - 7x$ and verify the relationship between the zeros and the co-efficients of the polynomial. [Delhi-2008]
12. Find the zeros of the quadratic polynomial $5x^2 - 4 - 8x$ and verify the relationship between the zeros and the coefficients of the polynomial. [Delhi-2008]
13. Find the quadratic polynomial sum of whose zeros is 8 and their product is 12. Hence, find the zeros of the polynomial. [AI-2008]
14. If one zero of the polynomial $(a^2 + 9)x^2 + 13x + 6a$ is reciprocal of the other. Find the value of 'a' [AI-2008]
15. If the product of zeros of the polynomial $ax^2 - 6x - 6$ is 4, find the value of 'a' [AI-2008]
16. Find all the zeros of the polynomial $x^4 + x^3 - 34x^2 - 4x + 120$, if two of it's zeros are 2 and -2 . [Foreign-2008]
17. Find all the zeros of the polynomial $2x^4 + 7x^3 - 19x^2 - 14x + 30$, if two of it's zeros are $\sqrt{2}$ and $-\sqrt{2}$ [Foreign-2008]
18. If the polynomial $6x^4 + 8x^3 + 17x^2 + 21x + 7$ is divided by another polynomial $3x^2 + 4x + 1$, the remainder comes out to be $(ax + b)$, find a and b . [Delhi-2009]
19. If the polynomial $x^4 + 2x^3 + 8x^2 + 12x + 18$ is divided by another polynomial $x^2 + 5$, the remainder comes out to be $px + q$. Find the values of p and q . [Delhi-2009]
20. Find all the zeros of the polynomial $x^3 + 3x^2 - 2x - 6$, if two of it's zeros are $-\sqrt{2}$ and $\sqrt{2}$. [AI-2009]
21. Find all the zeros of the polynomial $2x^3 + x^2 - 6x - 3$, if two of it's zeros are $-\sqrt{3}$ and $\sqrt{3}$. [AI-2009]
22. If the polynomial $6x^4 + 8x^3 - 5x^2 + ax + b$ is exactly divisible by polynomial $2x^2 - 5$, then find the value of a and b . [Foreign-2009]

POLYNOMIALS	ANSWER KEY	EXERCISE-3 (X)-CBSE
1. $x = -1$ 2. $3, -2$ 3. $x^2 - 3x - 2$ 4. 3 5. 2 6. 9 7. 3 8. $a = 1$ 9. $2x^2 + 3x - 9$ 10. $5x^2 + 3x - 13$		
11. $\left[\frac{-1}{3}, \frac{3}{2}\right]$ 12. $\left[\frac{-2}{5}, 2\right]$ 13. $x^2 - 8x + 12$; $(6, 2)$ 14. 3 15. $\frac{-3}{2}$ 16. $2, -2, -6$ and 5 17. $\sqrt{2}, -\sqrt{2}, -5$ and $\frac{3}{2}$		
18. $a = 1, b = 2$ 19. $p = 2, q = 3$ 20. $-\sqrt{2}, \sqrt{2}$ and -3 21. $-\sqrt{3}, \sqrt{3}$ and $-\frac{1}{2}$ 22. $a = -20, b = -25$		

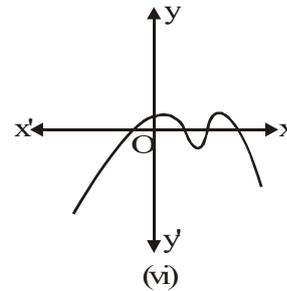
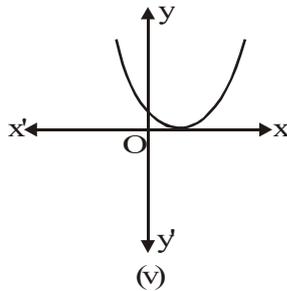
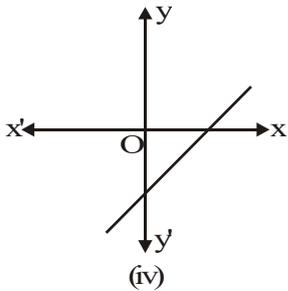
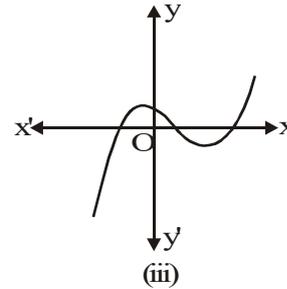
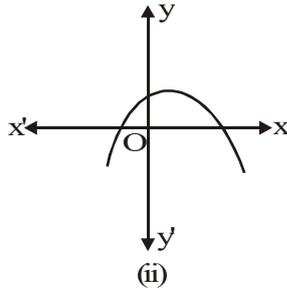
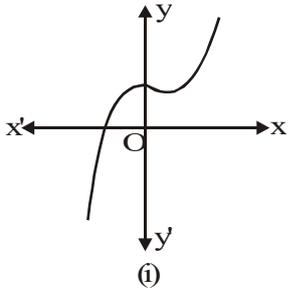
EXERCISE-2

(FOR SCHOOL/BOARD EXAMS)

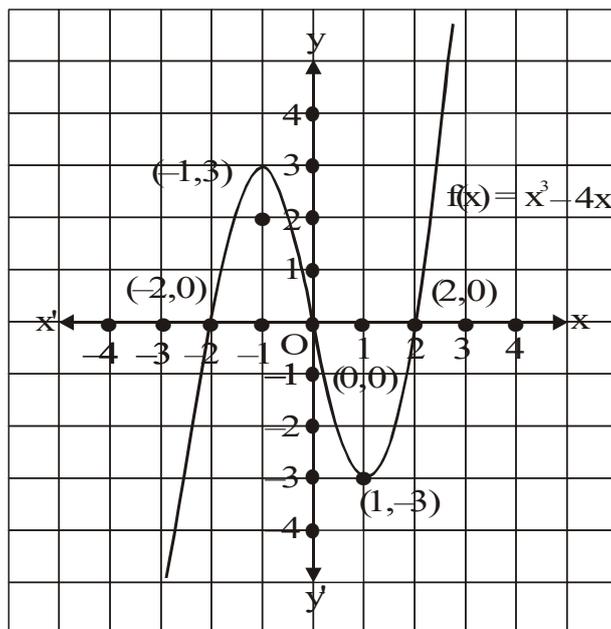
SUBJECTIVE TYPE QUESTIONS

VERY SHORT ANSWER TYPE QUESTIONS

1. Look at the graph in fig given below. Each is the graph of $y = p(x)$, where $p(x)$ is a polynomial. For each of the graph, find the number of zeros of $p(x)$.



2. Consider the cubic polynomial $f(x) = x^3 - 4x$. Find from the fig, the number of zeros of the above stated polynomials.

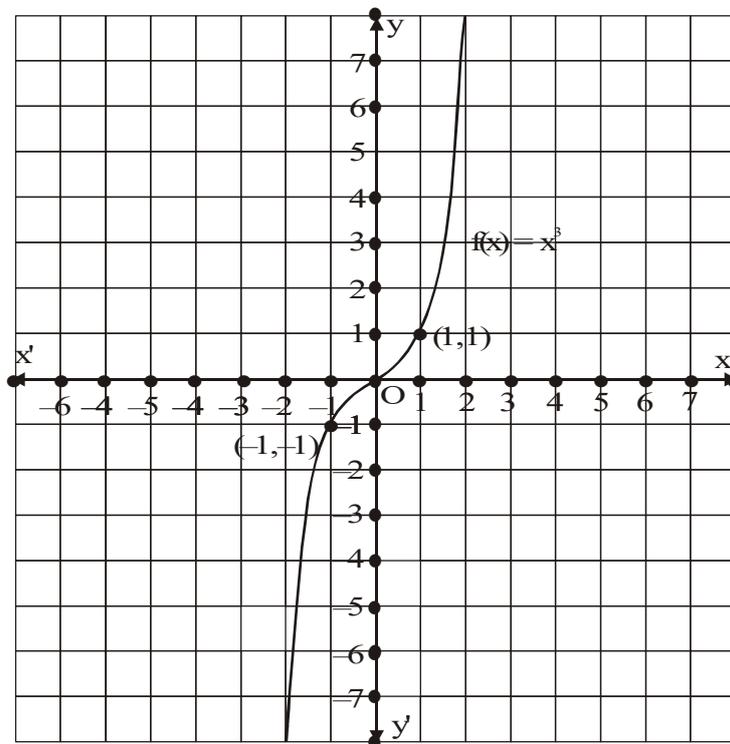


3. Let $f(x) = x^3$

The graph of the polynomial is shown in fig.

‡ Find the number of zeros of polynomial $f(x)$.

‡ Determine the co-ordinates of the points, at which the graph intersects the x-axis.


SHORT ANSWER TYPE QUESTIONS

1. Find the zeros of the following quadratic polynomials and verify the relationship between the zeros and their coefficients.

(i) $6x^2 - x - 1$ (ii) $25x(x + 1) + 4$ (iii) $4x^2 + 4x + 1$ (iv) $48y^2 - 13y - 1$ (v) $63 - 2x - x^2$
 (vi) $2x^2 - 5x$ (vii) $49x^2 - 81$ (viii) $4x^2 - 4x - 3$

2. Find a quadratic polynomial each with the given numbers as the zeros of the polynomials.

(i) $3 + \sqrt{7}, 3 - \sqrt{7}$ (ii) $2\sqrt{3}, -2\sqrt{3}$ (iii) $\frac{3}{7}, -\frac{2}{3}$ (iv) $\sqrt{3}, 3\sqrt{3}$ (v) $2 + 3\sqrt{2}, 2 - 3\sqrt{2}$ (vi) $\frac{8}{3}, \frac{5}{2}$

3. Find a quadratic polynomial each with the given numbers as the sum and product of its zeros respectively.

(i) $4\sqrt{3}, 9$ (ii) $2\sqrt{3} - 1, 3 - \sqrt{3}$ (iii) $0, -\frac{1}{4}$ (iv) $\frac{-10}{\sqrt{3}}, 7$ (v) $\frac{5}{6}, \frac{25}{9}$ (vi) $\frac{-2\sqrt{5}}{3}, -\frac{5}{3}$ (vii) $-\sqrt{3}, \frac{1}{4}$ (viii) $-\frac{6}{5}, \frac{9}{25}$

(ix) $\sqrt{2}, -12$

4. If α and β are the zeros of the polynomial $f(x) = 5x^2 + 4x - 9$ then evaluate the following :

(i) $\alpha - \beta$ (ii) $\alpha^2 + \beta^2$ (iii) $\alpha^2 - \beta^2$ (iv) $\alpha^3 + \beta^3$ (v) $\alpha^3 - \beta^3$ (vi) $\alpha^4 - \beta^4$

5. If one of the zeros of the quadratic polynomial $2x^2 + px + 4$ is 2, find the other zero. Also find the value of p .

6. If one zero of the polynomial $(a^2 + 9)x^2 + 13x + 6a$ is the reciprocal of the other, find the value of a .

7. If the product of zeros of the polynomial $ax^2 - 6x - 6$ is 4, find the value of a .

8. Find the zeros of the quadratic polynomial $5x^2 - 4 - 8x$ and verify the relationship between the zeros and the coefficients of the polynomial.

9. Determine if 3 is a zero of $p(x) = \sqrt{x^2 - 4x + 3} + \sqrt{x^2 - 9} - \sqrt{4x^2 - 14x + 6}$

10. If α and β be two zeros of the quadratic polynomial $ax^2 + bx + c$, then evaluate :

(i) $a^2 + b^2$ (ii) $\alpha^3 + \beta^3$ (iii) $\frac{1}{\alpha^3} + \frac{1}{\beta^3}$ (iv) $\frac{\alpha^2}{\beta} + \frac{\beta^2}{\alpha}$

EXERCISE-3**(FOR SCHOOL/BOARD EXAMS)****PREVIOUS YEARS BOARD (CBSE) QUESTIONS****1 Mark Questions :**

1. From a well shuffled pack of cards, a card is drawn at random. Find the probability of getting a black queen. [Delhi-2008]
2. A bag contains 4 red and 6 black balls. A ball is taken out of the bag at random. Find the probability of getting a black ball. [AI-2008]
3. A die is thrown once. Find the probability of getting a number less than 3. [Foreign-2008]
4. Cards bearing numbers 3 to 20 are placed in a bag and mixed thoroughly. A card is taken out from the bag at random. What is the probability that the number on the card taken out is an even number? [Delhi-2008 C]
5. Two friends were born in the year 2000. What is the probability that they have the same birthday? [AI-2008 C]

O R

Two coins are tossed simultaneously. Find the probability of getting exactly one head. [AI-2008]

2 Marks Questions :

1. A die is thrown once. Find the probability of getting : [Delhi-2008]
(i) A prime number
(ii) A number divisible by 2.
2. Cards, marked with numbers 5 to 50, are placed in a box and mixed thoroughly. A card is drawn from the box at random. Find the probability that the number on the taken card is :
(i) A prime number less than 10.
(ii) A number which is a perfect square [AI-2008]
3. A pair of dice is thrown once. Find the probability of getting the same number on each dice. [Foreign-2008]
4. A bag contains 5 red, 4 blue and 3 green balls. A ball is taken out of the bag at random. Find the probability that the selected ball is (i) of red colour (ii) not of green colour.

O R

A card is drawn at random from a well-shuffled deck of playing cards. Find the probability of drawing a (i) face card (ii) card which is neither a king nor a red card. [Delhi-2008 C]

5. Two dice are thrown simultaneously. Find the probability that the sum of the two numbers appearing on the top is less than or equal to 10.

O R

The king, queen and jack of diamonds are removed from a pack of 52 cards and then the pack is well shuffled. A card is drawn from the remaining cards. Find the probability of getting a card of (i) diamonds (ii) a jack.

[AI-2008C]

3 Marks Questions :

1. A bag contains 5 black, 7 red and 3 white balls. A ball is drawn from the bag at random. Find the probability that the ball drawn is (i) red (ii) black or white (iii) not black. **[Delhi-2004]**
2. A bag contains 7 black, 5 red and 3 white balls. A ball is drawn from the bag at random. Find the probability that the ball drawn is (i) red (ii) black or white (iii) not black. **[Delhi-2004]**
3. A bag contains 6 black, 7 red and 2 white balls. A ball is drawn from the bag at random. Find the probability that the ball drawn is (i) red (ii) black or white (iii) not black. **[Delhi-2004]**
4. A bag contains 4 red, 5 black and 6 white balls. A ball is drawn from the bag at random. Find the probability that the ball drawn is (i) white (ii) red (iii) not black (iv) red or white. **[AI-2004]**
5. A bag contains 4 red, 5 black and 6 white balls. A ball is drawn from the bag at random. Find the probability that the ball drawn is (i) white (ii) red (iii) not black (iv) red or white. **[AI-2004]**
6. A bag contains 3 red, 5 black and 7 white balls. A ball is drawn from the bag at random. Find the probability that the ball drawn is (i) white (ii) red (iii) not black (iv) red or white. **[AI-2004]**
7. A bag contains 6 red, 5 black and 4 white balls. A ball is drawn from the bag at random. Find the probability that the ball drawn is (i) white (ii) red (iii) not black (iv) red or white. **[AI-2004]**
8. 15 cards, numbered 1, 2, 3,, 15 are put in a box and mixed thoroughly. A card is drawn at random from the box. Find the probability that the card drawn bears (i) an even number (ii) a number divisible by 2 or 3. **[Foreign-2004]**
9. A card is drawn at random from a pack of 52 playing cards. Find the probability that the card drawn is neither an ace nor a king. **[Delhi-2004C]**
10. Out of 400 bulbs in a box, 15 bulbs are defective. One bulb is taken out at random from the box. Find the probability that the drawn bulb is not defective.

O R

Find the probability of getting 53 Fridays in a leap year. **[AI-2004 C]**

11. A bag contains 8 red, 6 white and 4 black balls. A ball is drawn at random from the bag. Find the probability that the drawn ball is : (i) red or white (ii) not black (ii) neither white nor black. **[AI-2005]**
12. A bag contains 5 white balls, 7 red balls, 4 black balls and 2 blue balls. One ball is drawn at random from the bag. What is the probability that the ball drawn is :
(i) white or blue (ii) red or black (iii) not white (iv) neither white nor black **[Delhi-2006]**
13. A card is drawn at random from a well shuffled deck of playing cards. Find the probability that the card drawn is : (i) a king or a jack (ii) a non ace (iii) a red card (iv) neither a king nor a queen. **[Delhi-2006]**
14. A card is drawn at random from a well-shuffled deck of playing cards. Find the probability that the card drawn is : (i) a card of spade or an ace (ii) a red king (iii) neither a king nor a queen (iv) either a king or queen. **[Delhi-2006]**
15. A box contains 19 balls bearing numbers 1, 2, 3,, 19. A ball is drawn at random from the box. What is the probability that the number of the ball is (i) a prime number (ii) divisible by 3 or 5 (iii) neither divisible by 5 nor by 10 (iv) an even number. **[Delhi-2006]**
16. Find the probability that a number selected at random from the numbers 1, 2, 3,, 35 is a (i) prime number (ii) multiple of 7 (iii) multiple of 3 or 5. **[Delhi-2006C]**
17. From a pack of 52 playing cards, jacks, queens, kings and aces of red colour are removed. From the remaining cards, a card is drawn at random. Find the probability that the card drawn is : (i) a black queen (ii) a red card (iii) a black jack (iv) a picture card (jacks, queens and kings are picture cards). **[AI-2006C]**

SUBJECTIVE TYPE QUESTIONS

VERY SHORT ANSWER TYPE QUESTIONS

Based on Consistency/Inconsistency of the system

1. On comparing the ratios $\frac{a_1}{a_2}$, $\frac{b_1}{b_2}$ and $\frac{c_1}{c_2}$ find out whether the following pair of linear equations are consistent or inconsistent.

Ⓐ $x - 3y = 4$; $3x + 2y = 1$ (ii) $\frac{4}{3}x + 2y = 8$; $2x + 3y = 12$

(iii) $4x + 6y = 7$; $12x + 18y = 21$ (iv) $x - 2y = 3$; $3x - 6y = 1$

2. On comparing the ratios $\frac{a_1}{a_2}$, $\frac{b_1}{b_2}$ and $\frac{c_1}{c_2}$ find out whether the lines representing the following pair of linear equations intersect at a point, are parallel or coincident :

Ⓐ Ⓐ $2x - y = 3$; $4x - y = 5$ (ii) $x + 2y = 8$; $5x - 10y = 10$ (iii) $3x + 4y = -2$; $12x + 16y = -8$

Ⓑ Ⓐ $6x + 3y = 18$; $2x + y = 6$ (ii) $x - 3y = 3$; $3x - 9y = 2$

(iii) $ax - by = c_1$; $bx + ay = c_2$, where $a \neq 0$, $b \neq 0$

3. For the linear equations given below, write another linear equation in two variables, such that the geometrical representation of the pair so formed is -

(i) Intersecting lines (ii) Parallel lines (iii) Coincident lines

(a) $2x - 3y = 6$ (b) $y = 2x + 3$

4. Find the value of k for which the given system of equations has a unique solution.

(a) $(k - 3)x + 3y = k$; $kx + ky = 12$ (b) $x - ky = 2$; $3x + 2y = -5$

5. Find the value of k for which the given system of equations has no solution.

Ⓐ $kx + 2y - 1 = 0$; $5x - 3y + 2 = 0$

Ⓑ (i) $x + 2y = 3$; $5x + ky + 7 = 0$ (ii) $kx + 3y = k - 3$; $12x + ky = k$

6. (a) Find the value(s) of k for which the system of equations $kx - y = 2$ and $6x - 2y = 3$ has

(i) A unique solution (ii) No solution

(b) Find the value of k for which system $kx + 2y = 5$ and $3x + y = 1$ has

(i) A unique solution (ii) No solution

7. Find the value of k for which the given system of equations has an infinite number of solutions.

(a) $5x + 2y = 2k$ and $2(k + 1)x + ky = (3k + 4)$

Ⓑ (i) $x + (k + 1)y = 5$ and $(k + 1)x + 9y = 8k - 1$

(ii) $10x + 5y - (k - 5) = 0$ and $20x + 10y - k = 0$

(c) $kx + 3y = k - 3$ and $12x + ky = k$

8. Find the value of a and b for which the given system of linear equation has an infinite number of solutions :

Ⓐ $2x + 3y = 7$ and $(a - b)x + (a + b)y = 3a + b - 2$

Ⓑ $(a + b)x - 2by = 5a + 2b + 1$ and $3x - y = 14$

Ⓒ $(2a - 1)x + 3y - 5 = 0$ and $3x + (b - 1)y - 2 = 0$

DR. VIRENDRA SWARUP EDUCATION CENTRE, PANKI, KANPUR

WORKSHEET-1

CLASS-X

SOCIAL SCIENCE

SECTION-A

1. Answer in one word. (Do it yourself)

1. Resources which are surveyed and their quantity and quality have been determined for utilisation .
2. Name a state where overgrazing is responsible for land degradation.
3. Which type of the resource is iron ore?
4. Territorial waters of India extends to how many nautical miles?
5. Which soil is formed by intense leaching ?
6. A piece of land that is normally used for farming but is left with no crops on it for a season in order to let it recover its fertility .
7. Which is the most widespread relief feature of India ?
8. In which areas terrace cultivation can be used to control soil erosion?
9. Which one of the following methods is ideal for controlling land degradation in coastal areas and in deserts ?
10. Which type of soil is suitable for the growth of cashew nut ?

2. ANSWER THE FOLLOWING QUESTIONS IN LESS THAN 20 WORDS: (DO IT YOURSELF)

- Q 1 Classify resources on the basis of status of development.
Q 2 What is Net Sown Area?
Q 3 Define Sustainable Development.
Q 4 Why is humus content in laterite soil low?
Q 5 What was the views of Gandhiji on resource conservation?

3. ANSWER THE FOLLOWING QUESTIONS IN LESS THAN 40 WORDS:

- Q1. Mention three features of black soil.
Q2. List the problems which resulted due to indiscriminate use of resource?
Q3 Why is 'Resource Planning' necessary? Give three reasons.
Q4. Explain three stages of resource planning.

SECTION-B

1. Who was Frederic Sorrieu ?
2. What does "Nation- state" mean ?
3. What changes were introduced after French Revolution in France?
4. What benefits were given to the people in the Napoleonic code ?
5. What benefits businessmen and small scale producers got from Napoleonic trade?
6. What is Zollverein?

7. Which countries met at Treaty of Vienna?
8. What was the objective of Treaty of Vienna?
9. What do you understand by 'Romanticism'?
10. Write short notes on Balkan kingdom.

SECTION-C

1. Why is horizontal power sharing also called a 'system of checks and balances'?
2. What was the ethnic composition of Sri Lanka?
3. What kind of power sharing problems were faced by Belgians and Sri Lankans?
4. Why was Brussels chosen as the head quarters during the formation of European Union?
5. Explain the two main reasons why power sharing is important in a democracy.
6. What factors led to a civil war in Sri Lanka?
7. How is power shared in a coalition government?
8. Distinguish between 'coming together federation' and 'holding together federations' with examples.
9. How challenge of language policy was adopted by the Indian federalism?
10. State any two achievements and problems of the Panchayat Raj system.

SECTION-D

1. Define the following terms:

- | | | |
|-----------------------------|--------------------|--------------------------|
| a. Economic Development | b. National Income | c. Gross Enrolment Ratio |
| d. BMI | e. Economic Growth | f. Infant Mortality Rate |
| g. Life expectancy at birth | | |

2. Besides more income, what other things do the people seek?
3. Why is the total income of countries not used to make comparisons between them?
4. According to the World Bank, what are low-income countries?
5. 'Development for one may be the destruction for other.' Do you agree with the statement? Justify your answer.
6. What is Human Development Index (HDI)? Name its variables.
7. Why are public facilities needed for the development of the country? Mention any two of them.
8. What is meant by sustainable development? Give its main features.
9. 'Although the level of income is an important indicator of development, it is an inadequate measure of the level of development.' Justify the statement.
10. Explain the two basic tools used for comparing an underdeveloped country with a developed one? What organisations developed these tools?

SOCIAL SCIENCE:

HISTORY/CIVICS:

Listen or see news daily broadcast by TV. Make a list of news items related to government policies or decisions by classifying these into the following categories

1. Four news items that relate only to the central government.
2. Four news related to your state or other state government.
3. Two news items about the relationship between the central and state government.

Learn the chapters completed in class.

Complete the holiday homework worksheet in a fair notebook.

GEOGRAPHY/ECONOMICS

MAKE A PROJECT FILE ON ANY ONE OF THE FOLLOWING TOPICS

1. CONSUMER AWARENESS
2. SOCIAL ISSUES
3. SUSTAINABLE DEVELOPMENT

HOLIDAYS HOMEWORK
CLASS X (SESSION 2022-23)

PHYSICS

- 1) A concave mirror produces 10 cm long image of an object of height of 2 cm. What is the magnification produced?
- 2) An object 1 cm high is held near a concave mirror of magnification 10. How tall will be the image?
- 3) An object 4 cm in size is placed at a distance of 25 cm from a concave mirror of focal length 15 cm. Find the position, nature and height of the image.
- 4) A converging mirror forms a real image of height 4 cm, of an object of height 1 cm placed 20 cm away from the mirror. Calculate the image distance. What is the focal length of the mirror?
- 5) A 4.5 cm needle is placed 12 cm away from a convex mirror of focal length 15 cm. Give the location of the image and the magnification. Describe what happens as the needle is moved farther from the mirror.
- 6) An arrow 2.5 cm high is placed at a distance of 25 cm from a diverging mirror of focal length 20 cm., Find the nature, position and size of the image formed.
- 7) The image formed by a convex mirror of focal length 20cm is a quarter of the object. What is the distance of the object from the mirror?
- 8) Find the size, nature and position of image formed by a concave mirror, when an object of size 1cm is placed at a distance of 15cm. Given focal length of mirror is 10cm.
- 9) An object 2cm high is placed at a distance of 16cm from a concave mirror, which produces 3cm high inverted image. What is the focal length of the mirror? Also, find the position of the image.
- 10) An erect image 3 times the size of the object is obtained with a concave mirror of radius of curvature 36cm. What is the position of the object?
- 11) A 2.5cm candle is placed 12 cm away from a convex mirror of focal length 30cm. Give the location of the image and the magnification.

- 12) An object is placed in front of a concave mirror of focal length 20cm. The image formed is 3 times the size of the object. Calculate two possible distances of the object from the mirror.
- 13) The image formed by a convex mirror is virtual, erect and smaller in size. Illustrate with figure.
- 14) A concave mirror produces a real image 10mm tall, of an object 2.5mm tall placed at 5cm from the mirror. Calculate focal length of the mirror and the position of the image.
- 15) When an object is placed at a distance of 60cm from a convex mirror, the magnification produced is $\frac{1}{2}$. Where should the object be placed to get a magnification of $\frac{1}{3}$?
- 16) An object is placed 18cm front of a mirror. If the image is formed at 4cm to the right of the mirror. Calculate its focal length. Is the mirror convex or concave? What is the nature of the image? What is the radius of curvature of the mirror?
- 17) A convex mirror used for rear view on an automobile has a radius of curvature of 3m. If a bus is located at 5m from this mirror, find the position, nature and magnification of the image.
- 18) An object 3cm high is held at a distance of 50cm from a diverging mirror of focal length 25cm. Find the nature, position and size of the image formed.
- 19) An converging mirror of focal length 20cm forms an image which is two times the size of the object. Calculate two possible distances of the object from the mirror.
- 20) The linear magnification of a convex mirror of focal length 15cm is $\frac{1}{3}$. What is the distance of the object from the focus of the mirror?
- 21) The focal length of a convex mirror is 12.5 cm. How far is its centre of curvature (i) from the pole (ii) from the focus.
