

COMPILED AUTUMN BREAK H.H.W. CLASS 11

AUTUMN BREAK HOLIDAY HOMEWORK

Mathematics (041)

Class 11

Kendriya Vidyalaya Mati Shift 1 - Session 2026-27

Autumn Break: 15 October 2026 to 24 October 2026 (10 day)

Chapters Covered (for revision)

- Ch 1 - Sets
- Ch 2 - Relations and Functions
- Ch 3 - Trigonometric Functions
- Ch 4 - Complex Numbers
- Ch 5 - Linear Inequalities
- Ch 6 - Permutations and Combinations
- Ch 7 - Binomial Theorem
- Ch 8 - Sequences and Series

Instructions for Students

1. Attempt one worksheet each day. Do all the work neatly in your Maths notebook.
2. Write the question number and then the complete solution, showing each step.
3. Draw diagrams and graphs with a pencil and ruler wherever needed.
4. Revise the chapter from the textbook before starting that day's worksheet.
5. This is revision work only, based on what has already been taught in class.

Day 1: Sets

1. Write the set of vowels in the English alphabet in roster form.
2. If $A = \{1, 2, 3, 4\}$ and $B = \{3, 4, 5, 6\}$, find $A \cup B$ and $A \cap B$.
3. Write in set-builder form: $\{2, 4, 6, 8\}$.
4. If $n(A) = 20$, $n(B) = 15$ and $n(A \cap B) = 5$, find $n(A \cup B)$.
5. Write the power set of $\{a, b\}$.
6. If $A = \{x : x \text{ is a prime number less than } 10\}$, write A in roster form.
7. For $A = \{1, 2, 3\}$ and $B = \{3, 4\}$, find $A - B$ and $B - A$.
8. In a class of 40 students, 25 play football and 20 play cricket, and 10 play both. How many play neither?

Day 2: Relations and Functions

1. If $A = \{1, 2\}$ and $B = \{3, 4\}$, find $A \times B$.
2. Define a function and give one example.
3. Find the domain of $f(x) = 1/(x - 2)$.
4. If $f(x) = 2x + 3$, find $f(2)$ and $f(0)$.
5. Find the range of $f(x) = x^2$.
6. If $f(x) = x^2$ and $g(x) = x + 1$, find $(f + g)(x)$.
7. Find the domain of $f(x) = \sqrt{x - 3}$.
8. For $R = \{(1, 2), (2, 3), (3, 4)\}$, write the domain and the range.

Day 3: Trigonometric Functions

1. Convert 60 degrees into radians.
2. Convert $\pi/4$ radians into degrees.
3. Find the value of $\sin 150$ degrees.
4. Find the value of $\cos(-60^\circ)$.
5. Prove that $\sin(\pi + x) = -\sin x$.
6. If $\sin x = 1/2$, find the general solution for x .
7. Find the value of $\tan(3\pi/4)$.
8. Find the maximum and the minimum value of $3 + 2 \sin x$.

Day 4: Complex Numbers

1. Express $(3 + 2i) + (1 - 5i)$ in the form $a + bi$.
2. Find the modulus of $3 + 4i$.
3. Find the conjugate of $2 - 3i$.
4. Multiply: $(2 + i)(3 - 2i)$.
5. Find the value of i^{15} .
6. Express $1/(1 + i)$ in the form $a + bi$.
7. Find the multiplicative inverse of i .
8. Solve: $x^2 + 4 = 0$.

Day 5: Linear Inequalities

1. Solve: $3x - 5 < 7$.
2. Solve $5x + 3 \leq 18$ and represent the solution on a number line.
3. Solve: $-3 < 2x + 1 \leq 5$.
4. Solve: $2(2x + 3) - 10 < 6(x - 2)$.
5. Solve: $x/2 + 1 \geq 3$.
6. Solve: $7 \leq (3x - 11)/2 \leq 11$.
7. Solve for x : $-5 \leq (5 - 3x)/2 \leq 8$.
8. Solve $3x + 8 > 2$, where x is a natural number.

Day 6: Permutations and Combinations

1. Evaluate $5!$.
2. Evaluate $7P3$.
3. Evaluate $8C3$.
4. In how many ways can 5 different books be arranged on a shelf?
5. How many 3-digit numbers can be formed from the digits 1, 2, 3 and 4 without repetition?
6. In how many ways can a committee of 3 be chosen from 7 people?
7. How many diagonals does a hexagon have?
8. In how many ways can 6 people be seated around a round table?

Day 7: Binomial Theorem

1. Expand $(x + 2)^3$.
2. Expand $(1 + x)^4$.
3. Write the general term in the expansion of $(a + b)^n$.

- Find the coefficient of x^2 in the expansion of $(1 + x)^5$.
- Find the middle term in the expansion of $(x + 1/x)^{10}$.
- Expand $(2x - 3)^3$.
- Find the coefficient of x^5 in the expansion of $(x + 3)^6$.
- Find the number of terms in the expansion of $(a + b)^{10}$.

Day 8: Sequences and Series (Part 1)

- Find the 8th term of the GP 2, 6, 18, ...
- Find the sum of the first 10 terms of the AP 3, 7, 11, ...
- Find the sum to n terms of the GP $1 + 2 + 4 + \dots$
- Find the 5th term of the GP 3, -6, 12, ...
- Find the sum of the first 20 natural numbers.
- Find the sum of the infinite GP: $1 + 1/2 + 1/4 + \dots$
- Find the sum: $1 + 3 + 5 + \dots + 49$.
- If the 3rd term of a GP is 24 and the 6th term is 192, find the GP.

Day 9: Sequences and Series (Part 2)

- Find the sum of the series $5 + 8 + 11 + \dots + 50$.
- Find the sum of the squares of the first 10 natural numbers.
- Find the 12th term of the GP $1, 1/2, 1/4, \dots$
- Insert three geometric means between 2 and 32.
- Find the sum: $1/2 + 1/4 + 1/8 + \dots$
- If a, b and c are in AP, show that $2b = a + c$.
- Find the sum of the first n odd numbers.
- Find the sum of the first 15 terms of the AP 10, 7, 4, ...

Day 10: Mixed Revision

- If $A = \{1, 2, 3\}$ and $B = \{2, 3, 4\}$, find $A \cap B$ and $A \cup B$.
- Find the domain of $f(x) = 1/(x^2 - 9)$.
- Find the value of $\cos 120^\circ$.
- Find the modulus of $1 + i$.
- Solve: $4x + 3 < 11$.
- Evaluate $6C2$.
- Expand $(x - 1)^3$.
- Find the sum of the first 12 terms of the AP 2, 5, 8, ...

Autumn Break

Holiday HW

PHYSICS(042)

MCQs

Q1 Strongest attractive force in nature is

- (a) Frictional force on rough surface. (b) Electromagnetic force.
(c) Strong nuclear force. (d) Gravitational force.

Q2. "If external force on a body is zero, its acceleration is also zero" is a statement of consequence of the

- (a) Newton's third law of motion (b) Newton's first law of motion
(c) Newton's second law of motion (d) First law of thermodynamics.

Q3. If radius of a circle is 2.14 m, then area of the circle, with due regards for significant figures, will be

- (a) 14.389 sq. m (b) 14.39 sq. m (c) 14.4 sq. m
(d) 14.0 sq. m

Q4. Basic unit in the given choices is

- (a) m/s (b) Nm (c) Kg m/s (d) mol

Q5. The velocity- time graph for uniform motion is

- (a) straight line incline to time axis (b) Curved line
(c) Straight line parallel to x- axis (d) Straight line parallel to y axis

Q6. A 120 m long train is moving towards west at a speed of 10 m/s. A bird, flying towards east at a speed of 5 m/s, crosses the train. What is the time taken by the bird to cross the train?

(a) 8 s (b) 10 s (c) 12 s (d) 16 s

Q7. When a particle moves in circular path, then the direction of centripetal acceleration is

(a) Towards the centre (b) perpendicular to velocity
(c) away from the centre (d) parallel to velocity

Q8. A bullet of mass 5 gram is shot from a gun of mass 5 kg. The muzzle velocity of bullet is 500 m/s, the recoil speed of gun is

(a) 0.5 m/s (b) 0.25 m/s (c) 1 m/s (d) data is insufficient

Q9. A light body and a heavy body have equal kinetic energy which has greater momentum?

(a) The heavy body (b) The light body
(c) Both have equal momentum (d) Data insufficient

Q10. The number of significant figures in 500.05 kg is

Q11. In a lift cables break then Normal Force applied become _____.

Q12. The order of magnitude of 7420000 is

Q13. A train covers the first half of the distance between two places at 40 km/hr and another half of the distance at 60 km/hr. The average speed of the train is



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Q14. The range of the gravitational force is

State whether the given statements are true or false

Q15. The maximum range does not depend upon the angle of projection.

Q16. When a body moves along a circular path, no work is done by the centripetal force.

Q17. When a body is falling freely under the action of gravity alone in vacuum. Its total mechanical energy remains constant during the fall.

Q18. For a particle moving in a circle with a constant angular speed, the acceleration vector is tangent to the circle.

Q19. Name the physical quantities whose dimensional formula are:

(i) MLT^{-2} (ii) $ML^{-1}T^{-2}$

Q20. (i) Distinguish between the Precision and accuracy.

(ii) Distinguish between mass and weight.

Q21. An object is moving with uniform acceleration. Its velocity after 5 seconds is 25 m/s and after 8 seconds, it is 34 m/s. Find the distance travelled by the object in 12th second.

Q22. Two vectors $= 5\hat{i} + 7\hat{j} - 3\hat{k}$ and $= 2\hat{i} + 2\hat{j} - \alpha\hat{k}$ are mutually perpendicular to each other. What is the value of ' α '?

Q23. Define: (i) Unit Vector (ii) Null Vector



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Q24. What is Impulse- Momentum theorem? Explain.

Q25. State the work energy theorem prove it for a constant force.

Q26. (a) Define

(i) Displacement (ii) Uniform velocity (iii) Instantaneous acceleration.

(b) Discuss the motion under free fall. Write all equation of motion for a free-falling body.

Q27. (i) Derive the relation between linear velocity and angular velocity.

(ii) Define angular acceleration. Deduce its relation with linear acceleration.

Q28. Using parallelogram law of vector addition find the magnitude and direction of two vectors incline to each other at an angle θ .

Q29. Two masses m and M are connected at the two ends of an inextensible string this passes over a smooth frictionless pulley. Calculate the acceleration of the masses and tension in the string. Given $M > m$.

Q30. When is the work said to be done? What is the dimensional formula and unit of work? How many erg are there in 1 Joule?

Q31. What are conservative forces? Explain.

Q32. Deduce (Derive) equations of motion by graphical method.

Q33. (a) A projectile is fired with a velocity ' u ' making an angle

with the horizontal. Derive expressions for

(i)time of flight (ii)maximum height (iii)horizontal range

(b) A cricket ball is thrown at a speed of 28 m/s in a direction 30° above the horizontal. Calculate (a) the maximum height, (b) the time taken by the ball to return to the same level, and (c) the

horizontal distance from the thrower to the point where the ball returns to the same level.

Q34. (i)State the law of conservation of linear momentum and drive it from Newton's third law of motion.

(ii)Obtain an expression for the maximum speed with which a vehicle can safely negotiate a curved Road banked at an angle θ . The coefficient of friction between the Wheels of the vehicle and the road is μ .

Q35.Derive the relation between linear velocity and angular velocity.

Q36.Define angular acceleration. Deduce its relation with linear acceleration.

Q37. Show that Newton's first law and third law of motion are contained in the second law.

CLASS 11 CHEMISTRY AUTUMN BREAK HOMEWORK

1. Complete your practical file and write all the practicals. And complete your notebook also.



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2. Prepare Science model preferably working model for RASHTRIYA Bal vaigyanik pradarshni you can have a team of 2 students.
3. STUDY THOROUGHLY FOR YOUR HALF YEARLY EXAM study chapters 1 to 6.
4. Answer the following five marks questions :
 - I) Explain molecular orbital theory and VSEPR theory with suitable examples
 - II) Explain periodic trend in properties of elements.
 - III) Explain Quantum numbers. Calculate the possible values of l , m , and s for $n = 2, 3, 4$
 - IV) Explain the rules which governs the filling of orbitals in an Atom
 - V) Explain different atomic models i.e. Thomson model, Rutherford model and Bohr's model
 - VI) Explain the following terms : mole, molarity, molality, mole fraction with numerical practice
 - VII) Explain intensive and extensive properties and derive the relationship between C_p and C_v for an ideal gas
 - VIII) Explain Hess's law of constant heat summation with numerical practice.

PM SHRI KENDRIYA VIDYALAYA MATI, SHIFT I
AUTUMN BREAK ASSIGNMENT (2026-27)
CLASS-XI
ENGLISH CORE (301)

PREPARE FOR HALF YEARLY EXAMINATIONS

Syllabus For Half- Yearly Examinations

Reading Skills

1. Comprehension Passage
2. Note Making

Writing Skills



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1. Classified Advertisements
2. Posters
3. Speech
4. Debate

Grammar

1. Tenses
2. Modals
3. Rearranging of sentences

Literature- Hornbill

1. The Portrait of a Lady
2. We are not afraid to die
3. Discovering Tut

Poem

1. A Photograph
2. The Laburnum Top
3. The Voice of the Rain

Snapshot

1. The Summer of the Beautiful White Horse
2. The Address
3. Mother's Day

Note: Complete all the Written/Pending Work in Home Work Note-Book



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CLASS: - XI A

SUBJECT: - COMPUTER SCIENCE

Q1. Write Python Programs :

- a) WAP to check if a number is palindrome
 - b) WAP to find factorial using loop
 - c) WAP to print Fibonacci series upto n terms
 - d) WAP to check if a year is leap year
- Q2. Short Answers (2 marks):

Q2. Write output of the following code:python

```
s = "KVS Kanpur"
print(s[2:6])
print(s[::-1])
print(s.upper())
```

Q2.python

```
s = "autumn break"
print(s.count('a'))
print(s.find('break'))
print(s.replace('autumn','winter'))
```

Q3.Python

```
str1 = "PYTHON"
for i in str1:
    print(i, end='*')
```

Q4. What will be output?

```
s = "hello"
s[0] = 'H'
print(s)
```

Q5.

WAP - Programming

- a) WAP to check string is palindrome or not without using [::-1]
- b) WAP to count number of uppercase, lowercase, digits in a string
- c) WAP to remove all vowels from a string

PART B: Tuple - Output Based

Q6.python



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```
t = (10, 20, 30, 20, 40)
print(t.index(20))
print(t.count(20))
print(len(t))
```

Q7.

Python

```
t1 = (1, 2, 3)
t2 = (4, 5)
print(t1 + t2)
print(t1 * 2)
print(30 in t1)
```

Q8.

Python

```
t = (10, 20, 30)
a, b, c = t
print(a, c)
x, y = (5, 10, 15) # Error? Why?
Q9. Difference with Output:python
```

```
t = (10)
print(type(t))
t = (10,)
print(type(t))
```

Q10. WAP - Programming (Tuple)

- a) WAP to create tuple of 5 numbers and find sum, max, min
- b) WAP to swap two tuples
- c) WAP to convert a tuple (1,2,3) into string "123"
- d) WAP to check if element exists in tuple or not

Challenge Q (5 marks):

WAP to take a string "11 COMPUTER SCIENCE" and store each word in a tuple, then print tuple in reverse order.

Output should be: ('SCIENCE', 'COMPUTER', '11')



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