# DAV PUBLIC SCHOOL,KATHARA , JHAKHAND ZONE I

**HOLIDAY HOMEWORK FOR DURGA PUJA VACATION 2025-26**

**CLASS :- XII A/B**

**PHYSICS**

1. **Solve 1st term question answer of physics class 12th 2025**
2. **Learn and write all exercise question of chapter up to 1st term**
3. **Solve numerical from sample paper up to 1st term.**

**CHEMISTRY**

1. **First Terminal portion of NCERT In Text questions answer writing in HW copy and learning.**
2. **All important definitions with example write and learn ( in HW copy).**
3. **First terminal examination question paper model answer, write and learn.**
4. **Complete the practical record copy and project file for coming practical examination.**

**BIOLOGY**

1. **What is cancer? Describe the causes, symptoms, and preventive measures.**
2. **Describe gametogenesis in humans (spermatogenesis and oogenesis).**
3. **make a full project (with content you can copy into your project notebook) for Biology .**

**ENGLISH**

1. **Answer all the questions of Literature Section correctly from the Question Paper of Half Yearly Exam,2025**
2. **Have Sample Excercises of INVITATION in the separate Sheet.**

**PHYSICAL EDUCATION**

1. **Mention the list of Arjuna award from 2023 to 2025 .**
2. **Explain any one personality related to this award in the chart paper.**
3. **Draw and label any one game with ground specification in the chart paper. (According to Syllabus) .**

**PAINTING**

1. **Write a note on Evolution of Indian National Flag with Layout Design**
    - **first National flag**
    - **Middle National flag**
    - **Final National flag With symbolic meaning**

**2.Analyse half yearly painting exam and make a proper note**

**Practical-**

- **Still-life(Pencil shading)**
- **composition(Colourful)-**
- **Gandhi jayanti**
- **Fish Market Scene**
- **Bus stand**
- **Cleanliness drive**

**COMPUTER SCIENCE**

1. **Write at least 10 Python Programming on topic**
    a) **Revision Tour – 04 (List, Tuple, Dictionary)**
    b) **File Handling – 03**
    c) **Data Structure – 03**

**( Write in Practical Copy)**

# DAV PUBLIC SCHOOL,CCL,KATHARA

KATHARA,BOKARO

**Mathematics**

Class-12

**Holiday Homework**

## Casestudy-1

Sherlin and Danju are playing Ludo at home during Covid-19.While rolling the dic Sherlin's sister Raji observed and noted the possible outcomes of the throw every tim belongs to set {1,2,3,4,5,6}.Let A be the set of players while B be the set of all possib outcomes.

A={S,D},B={1,2,3,4,5,6}

1. Let$R:B\to B$bedefinedbyR={$(x,y):yisdivisiblebyx$}is
   a. Reflexiveandtransitivebutnotsymmetric
   b. Reflexiveandsymmetricandnottransitive
   c. Notreflexivebutsymmetricandtransitive
   d. Equivalence
2. Raji wants to know the number of functions from A to B.How many number of functions are possible?
   a. $6^2$
   b. $2^6$
   c. 6!
   d. $2^{12}$
3. LetRbearelationonBdefinedbyR={(1,2),(2,2),(1,3),(3,4),(3,1),(4,3),(5,5)} ThenRis
   a. Symmetric
   b. Reflexive
   c. Transitive
   d. Noneofthesethree
4. Raji wants to know the number of relations possible from A to B.How many

numbers of relations are possible?

a. $6^2$

b. $2^6$

c. 6!

d. $2^{12}$

**5.** Let$R:B\rightarrow B$bedefinedbyR={(1,1),(1,2),(2,2),(3,3),(4,4),(5,5),(6,6)},thenRis

a. Symmetric

b. ReflexiveandTransitive

c. Transitiveandsymmetric

d. Equivalence

**ANSWERS**

**1.** (a)Reflexiveandtransitivebutnotsymmetric

**2.** (a)$6^2$

**3.** (d)Noneofthesethree

**4.** (d)$2^{12}$

**5.** (b)ReflexiveandTransitive

## Casestudy2

An organization conducted bike race under 2 different categories-boys and girls.Tota there were 250 participants.Among all of them finally three from Category 1 and two fro Category 2 were selected for the final race. Ravi forms two sets B and G with the participants for his college project.

Let B = {$b_1$,$b_2$,$b_3$}G={$g_1$,$g_2$} where B represents the set ofboys selectedand G the set of girls who were selected for the final race.

Ravidecidestoexplorethesesetsforvarioustypesofrelationsandfunctions

**1.** Ravi wishes to form all the relations possible from B to G. How many such relatio are possible?

a. $2^6$

b. $2^5$

c. 0

d. $2^3$

**2.** Let R: B→B be defined by R = {$(x,y)$: $x$and y are students of same sex}, Then th relation R is_____

a. Equivalence

b. Reflexiveonly

c. Reflexiveandsymmetricbutnottransitive

d. Reflexiveandtransitivebutnotsymmetric

**3.** Ravi wants to know among those relations, how many functions can be formed from B to G?

a. $2^2$

b. $2^{12}$

c. $3^2$

d. $2^3$

**4.** Let$R:B\rightarrow G$bedefinedbyR={($b_1$,$g_1$),($b_2$,$g_2$),($b_3$,$g_1$)},thenRis_____

a.Injective

b .Surjective

C.NeitherSurjectivenorInjective

d.SurjectiveandInjective

**5.** Ravi wants to find the number of injective functions from B to G.How many numbers of injective functions are possible?

a. 0

b. 2!

c. 3!

d. 0!

## ANSWERS

**1.** (a)$2^6$

**2.** (a)Equivalence

**3.** (d)$2^3$

**4.** (b)Surjective

**5.** (a)0

**CASESTUDY3:**

Raji visited the Exhibition along with her family. The Exhibition had a huge swing, which attracted manychildren.Raji foundthattheswingtraced thepathof aParabolaasgivenby$y = x^2$. Answer the following questions using the above information.

**1.** Let$f:R \to R$bedefinedby$f(x)=x^2$is_____

a. NeitherSurjectivenorInjective

b. Surjective

c. Injective

d. Bijective

**2.** Let $f:N \to N$bedefinedby $f(x)=x^2$is _____

a. SurjectivebutnotInjective

b. Surjective

c. Injective

d. Bijective

**3.** Letf:{1,2,3,….}→{1,4,9,….}bedefinedby $f(x)=x^2$is_____

a. Bijective

b. SurjectivebutnotInjective

c. InjectivebutSurjective

d. NeitherSurjectivenorInjective

**4.** Let:$N \to R$be $\text{definedby} f(x)=x^2$.Range of thefunction amongthefollowing is _____

**a.** {1,4,9,16,…}

**b.** {1,4,8,9,10,…}

**c.** {1,4,9,15,16,…}

**d.** {1,4,8,16,…}

**5.** Thefunctionf:Z→Zdefinedby$f(x)=x^2$is_____

a. NeitherInjectivenorSurjective

b. Injective

c. Surjective

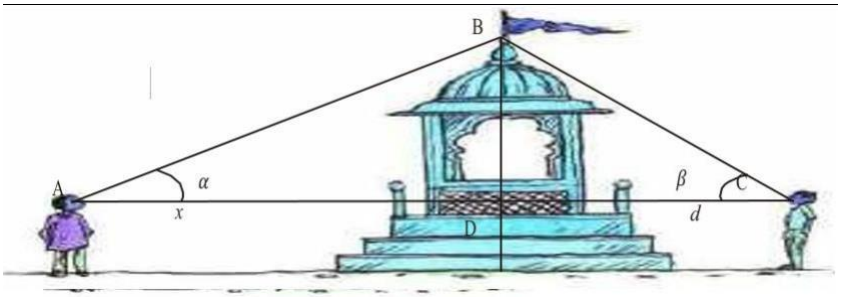
d. Bijective

**ANSWERS**

**1.** (a)NeitherSurjectivenorInjective
**2.** (C)Injective
**3.** (a)Bijective
**4.** (a){1,4,9,16,…}
**5.** (a)NeitherInjectivenorSurjective

**InverseTrigonometricFunction**:

**CASESTUDY4:**




Two menoneither sideofatempleof30meters high observeits topatthe angles ofelevation $\alpha$and$\beta$respectively.(asshowninthefigureabove).Thedistancebetweenthetwomenis $40\sqrt{3}$ meters and the distance between the first person A and the temple is $30\sqrt{3}$ meters. Based on the above information answer the following:

**1.** $\angle CAB=\alpha=$
   a. $\sin^{-1}\left(\frac{2}{\sqrt{3}}\right)$
   b. $\sin^{-1}\left(\frac{1}{2}\right)$
   c. $\sin^{-1}(2)$
   d. $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$

**2.** $\angle CAB=\alpha=$

a. $\cos^{-1}\left(\frac{1}{5}\right)$

b. $\cos^{-1}\left(\frac{2}{5}\right)$

c. $\cos^{-1}\left(\frac{\sqrt{3}}{2}\right)$

d. $\cos^{-1}{}^{4}(\frac{}{5})$

**3.** $\angle BCA=\beta=$

a. $\tan^{-1}{}^{1}(\frac{}{2})$

b. $\tan^{-1}(2)$

c. $\tan^{-1}(\frac{1}{\sqrt{3}})$

d. $\tan^{-1}(\sqrt{3})$

**4.** $\angle ABC=$

a. $\frac{\pi}{4}$

b. $\frac{\pi}{6}$

c. $\frac{\pi}{2}$

d. $\frac{\pi}{3}$

**5.** DomainandRangeof $\cos^{-1}x=$

a. $(-1,1),(0,\pi)$

b. $[-1,1],(0,\pi)$

c. $[-1,1],[0,\pi]$

d. $(-1,1),\quad [-\frac{\pi}{2}\ \ \frac{\pi}{2}]$

**ANSWERS**

**1.** (b )$\sin^{-1}{}^{1}(\frac{}{2})$

**2.** ( c) $\cos^{-1}\frac{\sqrt{3}}{2}$

**3.** (d)$\tan^{-1}(\sqrt{3})$

**4.** (c)$\pi\ \frac{}{2}$

**5.** (c)$[-1,1],[0,\pi]$

Case study 5

The Relation between the height of the plant (y in cm) withrespecttoexposuretosunlightisgovernedbythe followingequationy=$4x-\frac{1}{2}x^2$wherexisthenumber ofdaysexposedtosunlight.

**1.** Therateofgrowthoftheplantwithrespecttosunlightis_____.

a. $4x-\frac{1}{2}x^2$

b. 4– x

c. x– 4

d. $x-\frac{1}{2}x^2$

**2.** Whatisthenumberofdaysitwilltakefortheplanttogrowtothemaximum height?

a. 4

b. 6

c. 7

d. 10

**3.** Whatisthemaximumheightoftheplant?

a. 12cm

b. 10cm

c. 8cm

d. 6cm

**4.** Whatwillbetheheightoftheplantafter2days?

a. 4cm

b. 6cm

c. 8cm

d. 10cm

**5.** Iftheheightoftheplant is7/2cm,thenumberof days ithasbeenexposed tothe sunlight is _____.

a.2

b.3

c.4

d.1

**ANSWERS**

**1.** b)4 –x

2. a)4
3. c)8cm
4. b)6cm
5. d)1

**CASESTUDY6:**

P(x)=-5x$^2$+125x+37500isthetotalprofitfunctionofa company, where x is the production of the company.


1. Whatwillbetheproductionwhentheprofitismaximum?

a. 37500
b. 12.5
c. -12.5
d. –37500

2. Whatwillbethemaximumprofit?

a. Rs38,28,125
b. Rs38281.25
c. Rs39,000
d. None

3. Checkinwhichintervaltheprofitisstrictlyincreasing.

a. (12.5,∞)
b. forallrealnumbers
c. forallpositiverealnumbers
d. (0,12.5)

4. Whentheproductionis2unitswhatwillbetheprofitofthecompany?

a. 37500
b. 37,730
c. 37,770
d. None

5. WhatwillbeproductionofthecompanywhentheprofitisRs38250?

a. 15
b. 30
c. 2
d. dataisnotsufficienttofind

**ANSWERS**

1. b)12.5
2. b)Rs.38281.25
3. d)(0,12.5)
4. b)37,730
5. a)15

**CASESTUDY7:**

Apottermadeamudvessel,whereTheshapeofthepotis based onf(x) = |x – 3| + | x-2|, where f(x) represents the height of the pot.

1. Whenx>4Whatwillbetheheightintermsofx?

a. x– 2

b. x-3

c. 2x-5

d. 5–2x

2. Willtheslopevarywithxvalue?

a. Yes

b. No

3. What is $\frac{dy}{dx}$ atx =3

a. 2

b. -2

c. Functionisnotdifferentiable

d. 1

4. Whenthexvalueliesbetween(2,3)thenthefunctionis

a. 2x-5

b. 5–2x

c. 1

d. 5

**5.** Ifthepotteristryingtomakeapotusingthefunctionf(x)=[x],willhegetapotor not? Why?

a. Yes,becauseitisacontinuousfunction

b. Yes,becauseitisnotcontinuous

c. No,becauseitisacontinuousfunction

d. No,becauseitisnotcontinuous

**ANSWERS**

**1.** c)2x-5

**2.** a)yes

**3.** c)functionisnotdifferentiable

**4.** c)1

**5.** d)No,becauseitisnotcontinuous

**SolveproperlyinyourcopyduringHolidays. Then,submittoyourMath-Teacheratthetimeofreopeningoftheschool.**