


**CLASS – X**
**WINTER BREAK**
**HOMEWORK**
**Name:**
**Date:**

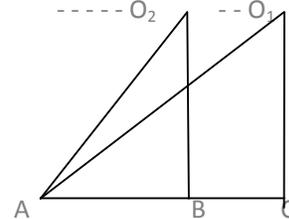
This is to bring to your kind notice that the school will reopen on Monday, 12th January 2015.

**MATHEMATICS**

Q1. Find the sum of all the multiples of 7 lying between 500 and 900.

Q2. Choose the correct option and justify your choice:

(a) In the following figure the angles of depression from the observing positions  $O_1$  and  $O_2$  of the object at A are: (given:  $\angle O_2AB = 45^\circ$ ,  $\angle AO_1C = 60^\circ$ )  
 (i)  $30^\circ, 45^\circ$  (ii)  $30^\circ, 60^\circ$  (iii)  $45^\circ, 30^\circ$  (iv)  $60^\circ, 30^\circ$



(b) At sometime of the day, the length of the shadow of the tower is equal to its height. Then the sun's altitude at that time is  
 (i)  $30^\circ$  (ii)  $60^\circ$  (iii)  $90^\circ$  (iv)  $45^\circ$

(c) The tops of two poles of height 16m and 10m are connected by a wire. If a wire makes an angle of  $30^\circ$  with the horizontal, then the length of the wire is  
 (i) 26m (ii) 10m (iii) 12m (iv) 16m

(d) An observer 1.5m tall is 20.5m away from a tower 22m high. The angles of elevation of the top of the tower from the eye of the observer is  
 (i)  $30^\circ$  (ii)  $60^\circ$  (iii)  $90^\circ$  (iv)  $45^\circ$

Q3. The sum of 5<sup>th</sup> and 9<sup>th</sup> terms of an AP is 72 and the sum of 7<sup>th</sup> and 12<sup>th</sup> terms is 97. Find the AP.

Q4. If the numbers  $x-2$ ,  $4x+1$  and  $5x+2$  are in AP, find the value of  $x$ .

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Q5. Find the sum of first  $n$  terms of an AP whose  $n$ th term is  $5n - 1$ . Hence find the sum of first 20 terms.

Q6. Find an AP whose fourth term is 9 and the sum of its sixth term and thirteenth term is 40.

Q7. The sum of  $n$ ,  $2n$ ,  $3n$  terms of an AP are  $S_1$ ,  $S_2$ ,  $S_3$ . Prove that:

$$S_3 = 3(S_2 - S_1)$$

Q8. The sum of first, third and seventeenth terms of an AP is 216. Find the sum of the first 13 terms of the AP.

Q9. Determine the AP whose 3<sup>rd</sup> term is 16 and when 5<sup>th</sup> term is subtracted from 7<sup>th</sup> term, we get 12.

Q10. How many natural numbers are there between 200 and 500, which are divisible by 7?

Q11. Find the value of the middle term of the following AP:

$$-6, -2, 2, \dots, 58$$

Q12. The sum of the third and the seventh terms of an AP is 6 and their product is 8. Find the sum of the first 10 terms of AP.

Q13. The 17<sup>th</sup> term of an AP is 5 more than twice its 8<sup>th</sup> term. If the 11<sup>th</sup> term of the AP is 43, find the  $n$ th term.

Q14. The angle of elevation of a jet fighter from a point A on the ground is  $60^\circ$ . After a flight of 10 sec, the angle of elevation changes to  $30^\circ$ . If the jet is flying at a speed of 432 km/hr, find the constant height at which the jet is flying.

Q15. A peacock is sitting on the top of a pillar, which is 9 m high. From a point 27 m away from the bottom of the pillar, a snake is coming to its hole at the base of the pillar. Seeing the snake the peacock pounces on it. If their speeds are equal, at what distance from the hole the snake is caught.

Q16. An aeroplane when flying at a height of 4000 m from the ground passes vertically above another aeroplane at an instant when the angles of elevation of the two aeroplanes from the same point on the ground are  $60^\circ$  and  $45^\circ$  respectively. Find the vertical distance between the two aeroplanes at that instant.

Q17. Two men on either side of a cliff 100 m high observe the angles of elevation of the top of the cliff to be  $30^\circ$  and  $60^\circ$  respectively. Find the distance between the two men.  
( $\sqrt{3} = 1.732$ )

Q18. A man standing on the deck of a ship which is 10 m above the water level, observes the angle of elevation of the top of a hill as  $60^\circ$  and the angle of depression of the base of the hill as  $30^\circ$ . Find the distance of the hill from the ship and the height of the hill.

**FRENCH :**

Make a ppt/chart on famous personalities of France.

**PHYSICS :****ANSWER THE FOLLOWING QUESTIONS**

1. What would have been the colour of the sky if there had not been any atmosphere around the earth?
2. For dispersion of light through a prism which colour has maximum deviation?
3. A person wears eye glass of focal length 70 cm what is the far point of the person?
4. If your eye glasses have focal length 60cm what is your near point?
5. Why do we observe random wavering or flicking of the objects near a fire or on a very hot day?
6. Why are we not able to see the things clearly when we come out of a dark room?
7. A certain person has minimum distance of distinct vision of 150cm . He wishes to read at a distance of 25cm. What focal length glass should he use? What is the nature of eye defect?
8. List the three phenomenon of light responsible for formation of rainbow in the sky.
9. What is the least distance of distinct vision of a normal human eye ?
10. Name one defect of vision which cannot be corrected by any type of spectacle lenses ?
11. State one effect produced by the scattering of light by the atmosphere ?
12. What is the nature of image formed on the retina of the eye ?
13. What type of lens is used for correcting hypermetropia ?
14. Who was the first person to obtain the spectrum of sunlight ?
15. What is the function of optic nerve in human eye ?
16. What is range of vision ?
16. Why do different colours deviate through different angles on passing through a prism?
17. Which defect of vision can be rectified using a concave lens ?
18. What phenomenon causes twinkling of star on a clear night ?
19. What is meant by scattering of light ?
20. Why does the sky appear black instead of blue to an astronaut?
21. What is the basic cause of atmospheric refraction?
22. Why does clear sky look blue?
23. Can visible light be scattered by atoms/molecules in earth's atmosphere?
24. What is a spectrum?
25. Name the defect of vision in person



- a. whose near point is more than 25cm away.
- b. whose far point is less than infinity

### **SOCIAL SCIENCE :**

A project report on the various non-conventional sources of energy and the steps to be taken by the government and the citizens to make this energy resource popular.

### **SANSKRIT :**

स्त्री प्रत्ययों पर एक प्रोजेक्ट तैयार करें।

### **HINDI :**

चॉकलेट का आकर्षक विज्ञापन बनाइए। (चॉकलेट का नाम, कीमत, आकर्षक योजना, गुण तथा नारे का समावेश होना आवश्यक है।)

### **ENGLISH :**

Write an article on any Social problem prevalent in the society and interview an official on the same issue.

***Wishing you and your family a very happy and prosperous new year***

