उपलब्धि परीक्षण - २०७५

Achievement Test (2019)

विषय - गणित (Mathematics)

कक्षा – ९ (Grade: 9)

Version: A

EMIS ID: **Serial Number:**

विद्यालयको नाम (Name of School):

समय (Time) - १ घण्टा (1 hr)

सबै प्रश्नहरु अनिवार्य छन्।

[Each question is worth one point प्रत्येक प्रश्न एक अङ्कका छन्।

बहुवैकल्पिक प्रश्नहरु (Multiple choice questions)

प्रत्येक प्रश्नमा चार वटा सम्भाब्य उत्तरहरु दिइएको छ। ती चारवटा सम्भाब्य उत्तरहरुमध्ये सही उत्तरमा गोला घेरा (O) लगाउनुहोस्।

Each question has four probable answers. Among the four probable answers, circle (O) the correct answer.

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1. Which of these has the same value as 342?
   (तलका मध्ये कुन योगफल 342 बराबर हुन्छ?)
   a. 3000 + 400 + 2
   b. 300 + 40 + 2
   c. 30 + 4 + 2
   d. 3 + 4 + 2

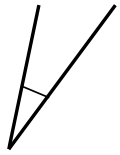
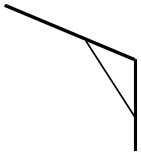
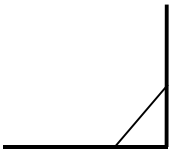
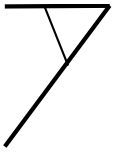
2. What is 48 × 5?
   (48 × 5 बराबर कति हुन्छ?)
   a. 200
   b. 240
   c. 420
   d. 500

3. What is 6 ÷ 3?
   (6 ÷ 3 बराबर कति हुन्छ?)

   a. 18
   b. 2
   c. 3
   d. 9

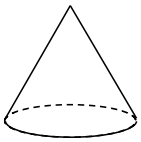
4. All of the students in a class cut out paper shapes. The teacher picked one out and said "this shape is a triangle." Which of the following statements MUST be correct? (एउटा कक्षाका विद्यार्थीले विभिन्न आकारमा कागजका टुक्रा काटे। शिक्षकले त्यसमध्ये एउटा टिपेर भन्नुभयो, "यो एउटा त्रिभुजको आकार हो"। यसमा तलका मध्ये कुन भनाइ सत्य हुनैपर्छ ?)
   a. The shape has three sides (त्यस आकारको तीन भुजा हुन्छ)
   b. The shape has a right angle (त्यस आकारको एउटा कोण समकोण हुन्छ)
   c. The shape has equal sides (त्यस आकारका सबै भुजा बराबर हुन्छन)
   d. The shape has equal angles (त्यस आकारका सबै कोण बराबर हुन्छ)

5. Which angle has the greatest degree measure? (तलका मध्ये कुन कोण सबै भन्दा ठुलो छ ?)

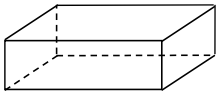
a. 
b. 
c. 
d. 

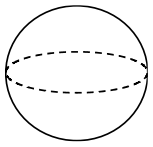
6. Which of the following is NOT a parallelogram? (तलका मध्ये कुन समानान्तर चतुर्भुज हैन?)
   a. Rectangle (आयत)
   b. Square (बर्ग)
   c. Rhombus (समबाहू चतुर्भुज)
   d. Trapezoid (समलम्ब चतुर्भुज)

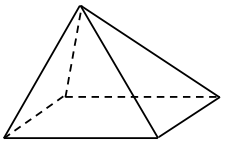
7. Below is a cone. Part of its surface is flat and part of its surface is curved.
(तलको चित्र सोली वा कोनको हो। यसको केहि भाग समथर र केहि भाग बक्र छ।)

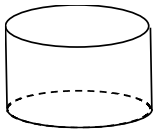


Which of these solids also has a flat surface and a curved surface?
(तलका मध्ये कुन चित्रमा पनि केहि भाग समथर र केहि भाग बक्र छ?)

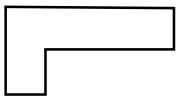
a. 

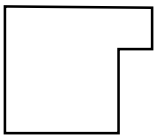
b. 

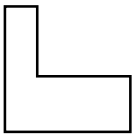
c. 

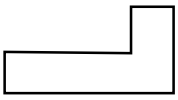
d. 

8. Figures that are the same size and shape are called "congruent" figures. Which two figures below are congruent?
(उस्तै आकारप्रकार भएका बस्तुलाई 'अनुरुप' भनिन्छ? तलका कुन दुई चित्र अनुरुप छन्?)

1. 

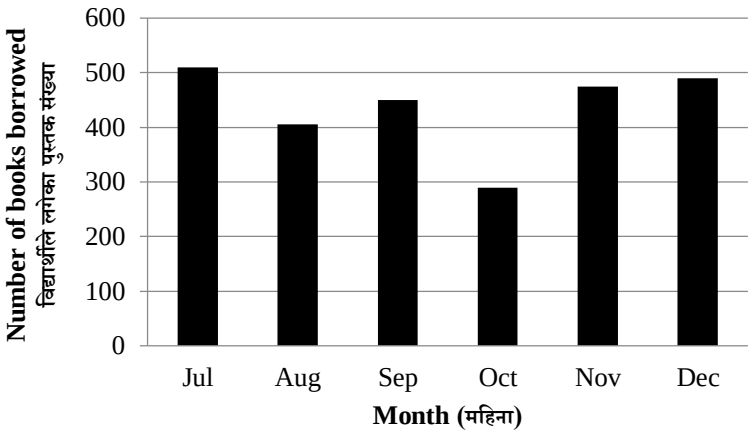
2. 

3. 

4. 

a. 1 and 2
b. 1 and 3
c. 1 and 4
d. 3 and 4

9. The graph below shows the number of books borrowed from a children's library from July 1 to December 31. (तलको चित्रमा विद्यार्थीले July 1 देखि December 31 सम्म पुस्तकालयबाट लगेका पुस्तकको संख्या देखाइएको छ।)



Which of the following CAN be found out from this graph? (माथिको ग्राफबाट कुन कुरा थाहा पाउन सकिन्छ?)

a. The number of books borrowed between 15th and 30th November
(November 15 देखि 30 सम्म विद्यार्थीले लगेका पुस्तक संख्या)
b. Why such few books were borrowed in October
(October मा विद्यार्थीले किन थोरै पुस्तक लगे भन्ने जानकारी)
c. The number of children who visited the library in August
(August महिनामा पुस्तकालय जाने विद्यार्थीको संख्या)
d. The month(s) in which more than 500 books were borrowed
(500 भन्दा बढी पुस्तक लागिएको महिना)

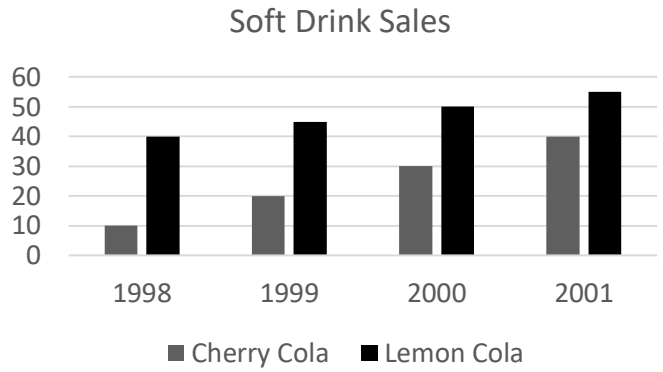
10. If A={a, e, i, o, u}, what is the value of n(A)?
(यदिA={a, e, i, o, u} भए, n(A) को मान कति हुन्छ?)

a. 4
b. 5
c. 3
d. 2

11. If a square has a side of 6 cm, what is its area?
(यदि कुनै वर्गको एउटा भुजाको नाप 6 cm भए त्यसको क्षेत्रफल कति हुन्छ?)

a. 24 cm^2
b. 36 cm^2
c. 12 cm^2
d. 64 cm^2

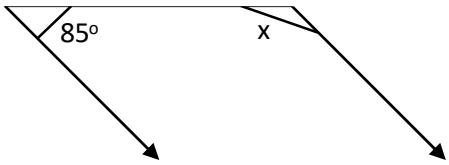
12. The graph below shows the sales of two types of soft drink over 4 years. (तलको ग्राफले दुई पेय पदार्थको 4 वर्षको बिक्रिलाई देखाउछ।



If the sales trends continue for the next 10 years, determine the year in which the sales of Cherry Cola will be the same as the sales of Lemon Cola. (यदि अबको १० बर्ष सम्म यहि दरमा बिक्रि हुने हो भने कुन बर्षमा Cherry Cola र Lemon Cola को बिक्रि बराबर हुन्छ?)

a. 2003
b. 2004
c. 2005
d. 2006

13. In the figure below, the two rays are parallel. (तलको चित्रमा एरोले देखाइएका रेखा समानान्तर छन्।)



What is the value of x? (x मान कति हुन्छ?)

a. 85°
b. 95°
c. 90°
d. 60°

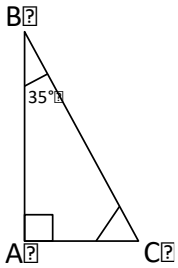
14. What is the volume of a cube with a side of 2 cm? (एउटा भुजा 2 cm भएको घनाकार बस्तुको आयतन कति हुन्छ?)

a. 16 cm^3
b. 4 cm^3
c. 6 cm^3
d. 8 cm^3

15. The perimeter of a square is 36 cm. What is the area of the square? (कुनै वर्गको परिमिति 36cm भए त्यसको क्षेत्रफल कति हुन्छ?)
    a. 81 cm^2
    b. 36 cm^2
    c. 24 cm^2
    d. 18 cm^2

16. What is the degree of the polynomial $x^3y^2+x^4y+xy$? (पोलिनोमिअल $x^3y^2+x^4y+xy$ को डिग्री कति हुन्छ ?)
    a. 3
    b. 4
    c. 5
    d. 2

17. What is the measure of angle C in the triangle below? (तलको त्रिभुज कोण C को मान कति हुन्छ?)

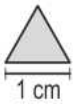


    a. 45°
    b. 55°
    c. 65°
    d. 145°

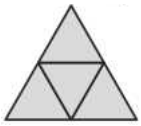
18. It takes Diksha 4 minutes to wash a window. She wants to know how many minutes it will take her to wash 8 windows at this rate. She should: (दीक्षालाई एउटा झ्याल सफा गर्न ४ मिनेट लाग्छ। उनलाई ८ वटा झ्याल त्यहि दरमा सफा गर्न कति समय लाग्छ?)
    a. Multiply 4 by 8 (4 लाई 8 ले गुणन गर्ने)
    b. Divide 8 by 4 (8 लाई 4 ले भाग गर्ने)
    c. Subtract 4 from 8 (8 बाट 4 घटाउने)
    d. Add 8 and 4 (8 र 4 जोड्ने)

19. Which of the numbers below is equal to $\frac{7}{10}$? ($\frac{7}{10}$बराबर तलको कुन मान हुन्छ?)
    a. 70
    b. 7
    c. 0.7
    d. 0.07

20. The figure below shows an equilateral triangle. Its side is 1 cm long. (तलको चित्र समबाहु त्रिभुज हो, जसको एउटा भुजाको नाप 1 cm छ)



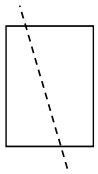
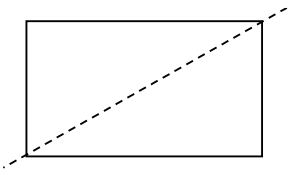
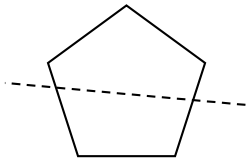
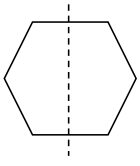
If you arrange four triangles to make a bigger triangle, as shown below, what will be the perimeter of the bigger triangle? (तलको चित्रमा देखाए जस्तै यस्तै किसिमका चार त्रिभुजलाई मिलाएर ठुलो त्रिभुज बनाइएको भए ठुलो त्रिभुजको परिमिति कति होला?)



    a. 3 cm
    b. 4 cm
    c. 6 cm
    d. 12 cm

21. Shaheen has 2 pencil boxes. Each box has 5 pencils. How will you find the total number of pencils in the two pencil boxes? (शाहिनसंग 2 वटा पेन्सिल बक्स छन् र प्रत्येक बक्समा 5 वटा पेन्सिल छन् भने 2 वटा पेन्सिल बक्समा भएका जम्मा पेन्सिलको संख्या कसरी पत्ता लगाउन सकिन्छ?)
    a. 2 + 5
    b. 5 - 2
    c. 2 × 5
    d. 2 + 2

22. In which of the figures below is the dotted line a line of symmetry? (तलका चित्रहरू मध्ये कुन थोप्ले (डटेड) रेखा सिमेट्री वा आधागर्ने रेखा हो?)

a. 
b. 
c. 
d. 

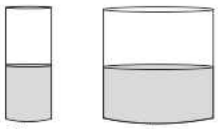
23. Which of the following is the simplified form of $(3x + 4y) \times (3x – 4y)$?
[$(3x + 4y) \times (3x – 4y)$को सरलीकृत रुप कुन हो?]
    a. $9x^2 – 16y^2$
    b. $9x^2 + 16y^2$
    c. $9x^2 + 24xy + 16y^2$
    d. $9x^2 – 24xy + 16y^2$

24. There were *m* boys and *n* girls in a parade. Each person carried 2 balloons. Which of these expressions represents the total number of balloons that were carried in the parade? (कुनै परेडमा *m* केटा र *n* केटी छन् र प्रत्येक केटा र केटीले 2 वटा बेलुन बोकेका छन् भने त्यो परेडमा भएका जम्मा बेलुनलाई तलको कुन अभिब्यन्जकले जनाउछ?)
    a. $2(m + n)$
    b. $2 + (m + n)$
    c. $2m + n$
    d. $m + 2n$

25. If U={1,2,3,…,10} and A={All multiples of 2 below 10}, what is the set $\bar{A}$? (यदि U={1,2,3,…,10} र A={10 भन्दा कमका 2 का गुणाङ्क} भए सेट$\bar{A}$ को मान कति हुन्छ?)
    a. {1,3,5,7,9}
    b. {2,4,6,8}
    c. {2,4,6,8,10}
    d. {1,3,5,7,9,10}

26. $\frac{9}{8} \times \frac{2}{3} = ?$
    a. $\frac{3}{4}$
    b. $\frac{18}{21}$
    c. $\frac{19}{24}$
    d. $\frac{27}{16}$

27. The figure below shows a glass and a jar of equal height. Both are half-filled with water (तलका चित्रमा बराबर उचाइका गिलास र जार देखाइएको छ र दुबैमा आधा आधा पानीले भरिएको छ)



If you pour all the water from the glass into the jar, which of the figures below shows how the level of water in the jar will look like? (यदि गिलासको सबै पानी जारको पानीमा थपी दिदाँ तलका मध्ये कुन आकारसंग मिल्दोजुल्दो हुन्छ ?)

a.

b.

c.

d.

28. Nihal has a loan of 8,000 Rupees with Bank A. The annual interest rate on that loan is 15%. His repayments each month are 150 Rupees. After one year, Nihal still owes 7,400 Rupees. Bank B offers Nihal a loan of 10,000 Rupees with an annual interest rate of 13%. His repayments each month would also be 150 Rupees. (निहलले बैंकA बाट बार्षिक 15% ब्याजदरमा रू.8000 ऋण लिएको छ । उसले मासिक रू 150 बुझाउदा पनि एक बर्षपछी उसले रू 7,400 अझै तिर्न बाँकी रहन्छ। निहललाई बैंक B ले बार्षिक 13% ब्याजदरमा रू 10,000 ऋणदिने भनेको छ जसबापत उसले प्रत्येक महिना रू150 नै तिर्दै जानु पर्नेछ।

Which of the following is NOT a consequence of taking the loan from Bank B? (बैंकB बाट लिइने ऋण सम्बन्धमा तलका मध्ये कुन भनाइ मिल्दैन?)

a. Nihal will have more debt (निहलको ऋण पहिलो भन्दा धेरै हुनेछ)
b. Nihal will pay a higher interest in total (निहलले पहिले भन्दा बढी ब्याज तिर्ने छ)
c. Nihal will take a longer time to pay the loan (निहललाई ऋण तिर्न पहिलेको भन्दा बढी समय लाग्नेछ)
d. Nihal will pay a lower interest in total (निहलले पहिले भन्दा कम ब्याज तिर्ने छ)

29. At the local market, you can buy tomatoes by the kilogram (kg) or by the box:
(बजारमा तपाईं किलोग्राममा खुल्ला जोखेर वा सोझै बाकसबाट टमाटर किन्न सक्नुहुन्छ, जसको दर तल दिइएको छ)

2.75 Rupees per kg
(खुल्ला प्रति किलोग्राम रू 2.75)

22 Rupees for a 10-kg box
(10 किलोग्रामको बाकसको रू 22)

Does the box of tomatoes offer better value for the money than the loose tomatoes?
(के बाकसको टमाटर किन्दा खुल्ला जोखेर किनेको टमाटर भन्दा सस्तो पर्दछ?)

a. Yes, because the price per kg of boxed tomatoes is lower than the price per kg of loose tomatoes (हो, किनभने बाकसको टमाटरको प्रति किलोग्राम दर खुल्ला जोखेर किनेको दरभन्दा सस्तो पर्दछ)
b. No, because some people may not need all the tomatoes in the box (हैन, किनभने केहि मानिसलाई बाकसको सबै टमाटर आवश्यक पर्दैन)
c. No, because some people may not be able to afford a box of tomatoes (हैन, किनभने केहि मानिसहरूले बाकसका सबै टमाटर किन्न सक्दैनन्)
d. No, the boxed tomatoes and the loose tomatoes offer the same value for the money (हैन, किनभने खुल्ला र बाकसका टमाटरको मूल्य उस्तै पर्दछ)

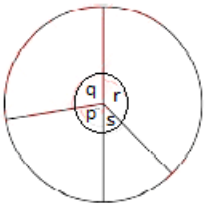
30. There are 36 passengers on a bus. The ratio of children to adults on the bus is 5 to 4. How many children are on the bus? (कुनै बसमा 36 जना यात्रु थिए, जसमा केटाकेटी र बुढापाकाको अनुपात 5:4 थियो। त्यसो भए सो बसमा कति केटाकेटी थिए?)

a. 9
b. 16
c. 20
d. 24

31. Which of the following expressions is equal to 2x-3y+7x+5y?
(तलका कुन अभिव्यन्जक 2x-3y+7x+5y संग बराबर हुन्छ?)

a. 5x+2y
b. 5x+8y
c. 9x+2y
d. 9x+8y

32. Which angle in the figure has a measure closest to 45°? (तलका मध्ये कुन कोण 45° को नजिक छ)

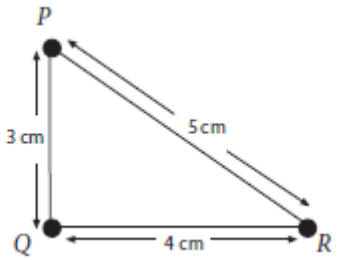


a. *p*
b. *q*
c. *r*
d. *s*

33. $\frac{4}{100} + \frac{3}{1000} = ?$

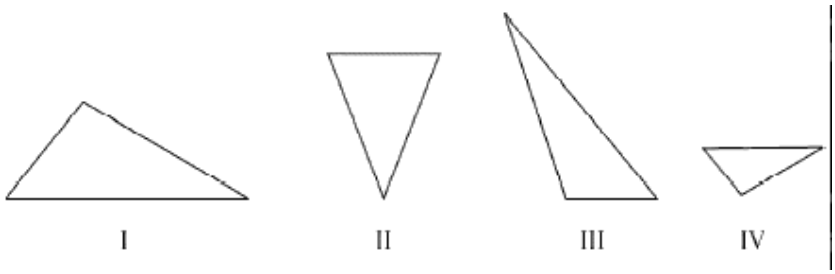
a. 0.043
b. 0.1043
c. 0.403
d. 0.43

34. Which of these is the reason that triangle *PQR* is a right angle triangle? (त्रिभुज *PQR* एउटा समकोण त्रिभुज हुने कारण निम्नमध्ये कुन हो)



a. $3^2 + 4^2 = 5^2$
b. $5 < 3 + 4$
c. $3 + 4 = 12 - 5$
d. $3 > 5 - 4$

35. Two of the triangles below are similar. (तलका दुई त्रिभुजहरू समरूप छन्)



Which two triangles are similar (तलका मध्ये कुन त्रिभुज समरूप छन्?)

a. I and II
b. I and III
c. I and IV
d. II and IV