KENDRIYA VIDYALAYA, ADILABAD
Autumn Holidays Home Work 2026-2027
Subject: MATHEMATICS
CLASS: 7th

General Instructions for Students:
1. Use A4 sheet papers for Holiday Homework.
2. The work should be neat, handwritten, and well-indexed.
3. Creative Presentation: Use colors for diagrams and underline final answers

1Q. Suppose you write down all the numbers 1, 2, 3, 4, …, 9, 10, 11, ... The tenth digit you write is '1' and the eleventh digit is '0', as part of the number 10.
(a) What would the 1000th digit be? At which number would it occur?
(b) What number would contain the millionth digit?
(c) When would you have written the digit '5' for the 5000th time?

2Q. Read the situations given below. Write appropriate expressions for each of them and find their values.

(a) The district market in Begur operates on all seven days of a week. Rahim supplies 9 kg of mangoes each day from his orchard and Shyam supplies 11 kg of mangoes each day from his orchard to this market. Find the amount of mangoes supplied by them in a week to the local district market.

(b) Binu earns ₹20,000 per month. She spends ₹5,000 on rent, ₹5,000 on food, and ₹2,000 on other expenses every month. What is the amount Binu will save by the end of a year?

(c) During the daytime a snail climbs 3 cm up a post, and during the night while asleep, accidentally slips down by 2 cm. The post is 10 cm high, and a delicious treat is on its top. In how many days will the snail get the treat?

3Q. Pinto supplies 3.79 L, 4.2 L, and 4.25 L of milk to a milk dairy in the first three days. In 6 days, he supplies 25 litres of milk. Find the total quantity of milk supplied to the dairy in the last three days.

4Q. Indian Railways offers optional travel insurance for passengers who book e-tickets. It costs 45 paise per passenger. If 1 lakh people opt for insurance in a day, what is the total insurance fee paid?

5Q. Radha is preparing for a cycling race and practices daily. The first week she cycles 5 km every day. Every week she increases the daily distance cycled by ‘z’ km. How many kilometers would Radha have cycled after 3 weeks?

6Q. Define and draw a Transversal line of two parallel lines and state all properties of the Transversal line?

7Q. Two consecutive numbers in the Virahāṅka sequence are 987 and 1597. What are the next 2 numbers in the sequence? What are the previous 2 numbers in the sequence?

8Q. Angaan wants to climb an 8-step staircase. His playful rule is that he can take either 1 step or 2 steps at a time. For example, one of his paths is 1, 2, 2, 1, 2. In how many different ways can he reach the top?

9Q. Through construction, explore if it is possible to construct an equilateral triangle that is (i) right-angled (ii) obtuse-angled. Also construct an isosceles triangle that is (i) right-angled (ii) obtuse-angled.

10Q. Mira is reading a novel that has 400 pages. She read 1/5 of the pages yesterday and 3/10 of the pages today. How many more pages does she need to read to finish the novel?

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1Q. Rewrite each sequence of Table 1(Page No. 3)in your notebook, along with the next three numbers in each sequence! After each sequence, write in your own words what is the rule for forming the numbers in the sequence.

2Q. Get a slanting crease on the paper. Now, try to get another crease that is perpendicular to the slanting crease.
a. How many right angles do you have now? Justify why the angles are exact right angles.
b. Describe how you folded the paper so that any other person who doesn't know the process can simply follow your description to get the right angle.

3Q. What is the sum of the smallest and largest 5-digit palindrome? What is their difference?

4Q. How many rounds does the number 5683 take to reach the Kaprekar constant?

5Q. Check if the Collatz Conjecture holds for the starting number 100.

6Q. Draw the **Matha Pachchi** diagram from page no. 133 and answer the following questions
(i) Find out the total distance Akshi has covered in 5 rounds.

(ii) Find out the total distance Toshi has covered in 7 rounds. Who ran a longer distance?

7Q. Four flower beds having sides 2 m long and 1 m wide are dug at the four corners of a garden that is 15 m long and 12 m wide. How mucharea is now available for laying down a lawn?

8Q. On apage in your book, draw a rectangular border that is 1 cm from the top and bottom and 1.5 cm from the left and right sides. What is the perimeter of the border?

9Q. A Square piece of paper is folded in half. The square is then cut into two rectangles along the fold. Regardless of the size of the square, one of the following statements is always true. Which statement is true here?

a. The area of each rectangle is larger than the area of the square.

b. The Perimeter of the square is greater than the perimeters of both the rectangles added together.

c. The perimeters of both the rectangles added together is always 11 2 times the perimeter of the square.

d. The area of the square is always three times as large as the areas of both rectangles added together.

10Q. Draw and Cut out the tangram pieces such as given at the end of your textbook. And answer the questions below

a) Explore and figure out how many pieces have the same area.
b) How many times bigger is Shape D as compared to Shape C?
What is the relationship between Shapes C, D and E?

KENDRIYA VIDYALAYA, ADILABAD
Autumn Holidays Home Work 2026-2027
Subject: MATHEMATICS
CLASS: 9th

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1Q. If the length of a rectangle is three more than twice its width and its perimeter is 24 cm, what are the dimensions of the rectangle?

2Q. A learning platform charges a fixed monthly fee and an additional cost per digital learning module accessed. A student observes that when she accessed 10 modules, her bill was `400. When she accessed 14 modules, her bill was `500. If the monthly bill y depends on the number of modules accessed, x, according to the relation y = ax + b, find the values of a and b.

3Q. Draw the graphs of y = 2x – 1, y = 2x + 1, y = 2x + 5, first individually and then on the same axes ?

4Q. Represent √5 on number line?

5Q. Visualise and geometrically prove the Identity $(a+b+c)^2 = a^2+b^2+c^2+2ab+2bc+2ca$.

6Q. State and prove theorem 9 from chapter 5.

7Q. A chord of a circle of radius 10 cm subtends 90° at the centre. Find the area of the corresponding: (i) minor sector (that subtends 90° at the centre), and (ii) major sector (that subtends 270° at the centre). (Use $\pi \approx 3.14$.)

8Q. A basket contains 4 red balls and 5 blue balls. One ball is drawn and laid aside, and a second ball is drawn. Draw a tree diagram to represent the possible outcomes and probabilities. Use the tree diagram to answer the following questions.

(i) What is the probability of drawing a red ball and then a blue ball?

(ii) What is the probability of drawing 2 blue balls?

9Q. How many three-digit numbers are divisible by 7? (Hint: All three-digit numbers divisible by 7 form an AP. Find the smallest and largest such three-digit numbers.)

10Q. Find a GP for which the sum of the first two terms is – 4 and the f ifth term is 4 times the third term.