

SST MATH CHALLENGE 2023

Sample Paper

Group-1 (Class 9 & 10)

Instructions:

1	The duration of the competition is 90 minutes.
2	30 problems to solve: Fifteen – 2 points each, Ten – 4 points each and Five – 6 points each.
3	Calculators are not allowed. You may use basic geometric tools.

2 Point Problems

1. One of the linear factors of $3x^2+8x+5$ is

A	(x+1)
B	(x-2)
C	(x+2)
D	(x-4)

2. The sum of two numbers is 5 times their difference. If the smaller number is 24, find the larger number.

A	30
B	32
C	36
D	48

3. How many positive integers m are there such that $2 + 2017m$ is a perfect square?

A	1
B	2
C	3
D	4

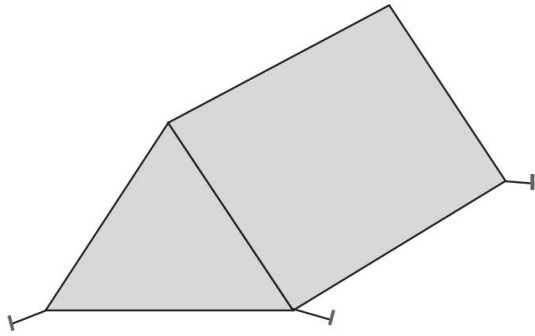
4. One-third of the boys and one-half of the girls of a college participated in a social work project. If the number of students who participated is 300 out of which 100 are boys, then what is the number of students in the college?

A	500
B	600
C	700
D	800

4 Point Problems

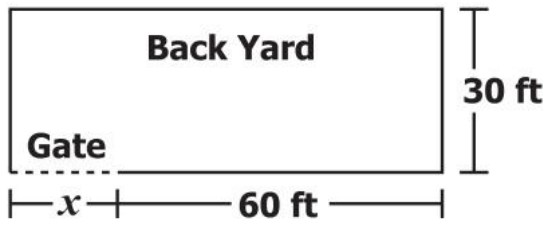
1. Amir’s tent is a triangular prism,as shown below

Which combination of shapes make up the bases and faces of Amir’s tent?



A	2 Triangles , 2 Rectangles
B	3 Triangles , 2 Rectangles
C	2 Triangles , 2 Rectangles
D	3 Triangles , 3 Rectangles

2. When kiran installed a fence along the 200-foot perimeter of her rectangular backyard,she left an opening for a gate. In the diagram below , she used x to represent the length, in feet, of the gate.



What is the value of x?

A	10
B	20
C	25
D	30

3. Let x satisfies the equation $\frac{1}{x} = \frac{1}{2017^2} + \frac{1}{2017^2} + \dots + \frac{1}{4030^2}$

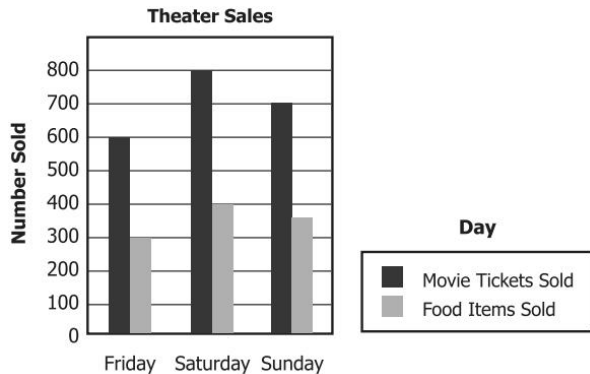
Which of the following numbers is the nearest to x?

A	2016
B	2017
C	3024
D	4035

6 Point Problems

1. Arsalan works at a movie theater. He made the graph below to compare the number of movie tickets with the number of food items that were sold during three days.

How many more movie tickets were sold on Saturday than on Friday



A	100
B	200
C	300
D	400

2. Nasir, Ranbeer, and Laiba live in the same neighbourhood. They have found out that the straight line distance from Nasir's house to Ranbeer's house is 250 m, and from Ranbeer's house to Laiba's house is 300m. Which of the following is true about the distance between Nasir's house and Laiba's house?

A	The distance is precisely 550 m.
B	The distance is between 0 m and 550 m.
C	The distance is between 50 m and 550 m
D	The distance can be any value

3. The numbers 1, 2, 3 and 4 are drawn one at a time from the set $\{0, 1, 2, \dots, 9\}$. If these four numbers are drawn with replacement, what is the probability that $14 - 23$ is an even number?

A	$\frac{1}{2}$
B	$\frac{1}{4}$
C	$\frac{3}{4}$
D	$\frac{3}{8}$

4. A box contains a total of 400 tickets of five different colours: blue, green, red, yellow and orange. The ratio of blue to green to red tickets is 1: 2: 4. The ratio of green to yellow to orange tickets is 1: 3: 6. What is the smallest number of tickets that must be drawn to ensure that at least 50 tickets of one colour have been selected?

A	0196
B	0197
C	0198
D	0199

