CHAPTER – 2

LONG AND SHORT

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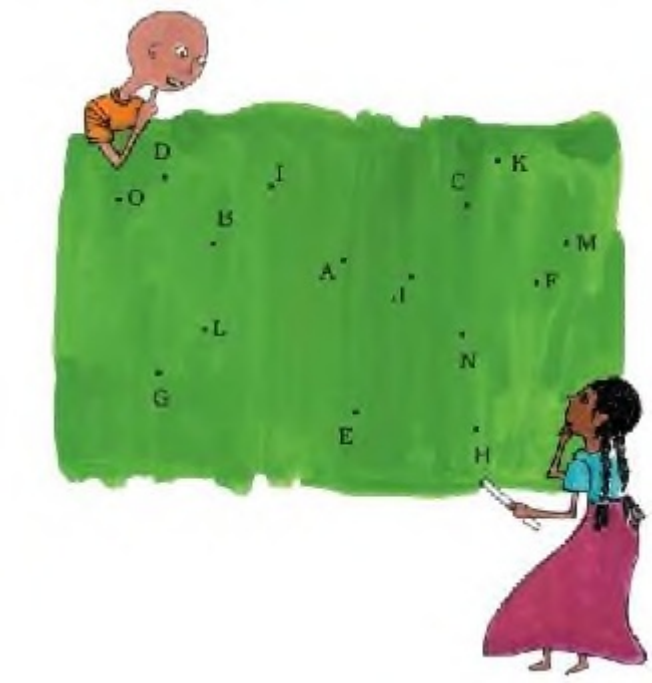
Question 1: How Far Apart are the Dots?



• Guess the distance between any two dots. How many centimetres is it? Now measure it with the help of a scale. Did you guess right?

• Which two dots do you think are farthest from each other? Check your answer.

• Which two dots are nearest to each other? Check your answer.

Answer:

Disclaimer: *Students are advised to prepare the answer on their own.*

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Question 1: Try This

• Make her right arm 1 cm longer than the left arm.

• Draw a cup 1 cm shorter than this cup.

• Draw a broom half as long as this broom.

• Draw another hair of double the length.

Answer:

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Question 1: Jhumpa once read a list of the tallest people in the world. One of them was 272 cm tall! That is just double of Jhumpa's height. How tall is Jhumpa? _____ cm.

Answer:

We know that the height of one of the tallest persons in the world is twice that of Jhumpa. In other words, Jhumpa's height is half of the height of one of the tallest persons in the world. Height of one of the tallest persons in the world = 272 cm ∴ Jhumpa's height = 272 ÷ 2 = 136 cm

Thus, Jhumpa is 136 cm tall.

Question 2: The Long and Short of Your Family!

• Who is the tallest in your family? _____

• Who is the shortest in your family? _____

• What is the difference between their heights? _____

Answer:

***Disclaimer*:** *The answer may vary from student to student, based on his/her experience. It is highly recommended that the students prepare the answer on their own.*

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Question 1: *Race*

This is a 100 metre race for girls. Arundhati is nearest the finishing line. She is about 6 metres from it. Behind her is Rehana. Konkana and Uma are running behind Rehana. Look at the picture. To answer the questions below choose from these distance: — 3 metres — 6 metres — 10 metres — 15 metres

(a) How far is Rehana from Arundhati? _____

(b) How far ahead is Rehana from Konkana and Uma?

_____

(c) How far are Konkana and Uma from the finishing line?

_____

Answer:

(a) By observing the figure, we see that the distance between Rehana and Arundhati is smaller than the distance of Rehana from Konkana and Uma. So, the distance between Rehana and Arundhati is 3 metres.

(b) By observing the figure, we see that the distance of Rehana from Konkana and Uma is double the distance between Rehana and Arundhati. Thus, Rehana is 6 metres ahead of Konkana and Uma.

(c) Since Rehana is 6 metres ahead of Konkana and Uma, Arundhati is 3 metres ahead of Rehana and Arundhati is 6 metres behind the finishing line.

∴ Distance of the finishing line from Konkana and Uma = 6 m + 3 m + 6 m = 15 m

Thus, Konkana and Uma are 15 metres far away from the finishing line.

Question 2:

• So you can say — In a 1500 metres race people run _____ km

In a 3000 metres race people run _____ km

Answer:

We know 1 km = 1000 m Half km = 500 m Now, 1500 m = 1000 m + 500 m = (1000 ÷1000) km + 500 m = 1 km + Half km = 1 and a half kilometres

In a 1500 metres race people run 1 and a half km

3000 m = (3000 ÷1000) km = 3 km

In a 3000 metres race people run 3 km

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Question 1: Have you heard about marathon races in which people have to run about 40 kilometres? People run marathons on roads because the track of a stadium is only 400 metres.

• 10 rounds of a stadium track = _____ km

• So, if you run a marathon on a stadium track, you will have to complete _____ rounds!

Answer:

We know 1000 m = 1 km • Length of the stadium track = 400 m Distance covered in 1 round = 400 m ∴ Distance covered in 10 rounds = (10 ×400) m = 4000 m = (4000 ÷1000) km = 4 km 10 rounds of a stadium track = 4 km

• Total length of the marathon race = 40 km = (40 ×1000) m = 40000 m

Distance covered in 1 round = 400 m Number of rounds to be taken to complete the race = (40000 ÷400) = 100 So, if you run a marathon on a stadium track, you will have to complete 100 rounds!

Question 2: Dhanu has the longest jump of 3 metres 40 cm. Gurjeet is second. His jump is 20 cm less than Dhanu's. Gopi comes third. His jump is only 5 cm less than Gurjeet's jump.

• How long are Gurjeet's and Gopi's jumps?

_____

• Try and see how far you can jump.

• How far can you throw a ball? _____ metres.

• Look for a big ball, like a football or volleyball. How far can you kick it? _____

Answer:

• We know 1 m = 100 cm Length of Dhanu's jump = 3 m 40 cm = (3 ×100) cm + 40 cm = 300 cm + 40 cm = 340 cm

Since Gurjeet's jump is 20 cm less than that Dhanu's jump, we will subtract 20 cm from 340 cm to find the length of Gurjeet's jump.

340cm – 020cm 320cm

Now, Length of Gurjeet's jump = 320 cm = 300 cm + 20 cm = (300 ÷100) m + 20 cm = 3 m + 20 cm = 3 m 20 cm

Gurjeet's jump is 3 m 20 cm long. Since Gopi's jump is 5 cm less than Gurjeet's jump, we will subtract 5 cm from 320 cm to find the length of Gopi's jump.

320cm – 005cm 315cm

Now, Length of Gopi's jump = 315 cm = 300 cm + 15 cm = (300 ÷100) m + 15 cm = 3 m + 15 cm = 3 m 15 cm Gopi's jump is 3 m 15 cm long.

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Question 1: Here are the Indian Records and World Records for some jumps.

Sports	*World Record*	*Indian Record*
High Jump (Men)	Javier S. (2m 45 cm)	Chandra Pal (2m 17 cm)
Long Jump (Men)	Mike P. (8m 95 cm)	Amrit Pal (8m 8 cm)
High Jump (Women)	Stefka K. (2m 9 cm)	Bobby A. (1m 91 cm)
Long jump (Women)	Galina C. (7m 52 cm)	Anju G. (6m 83 cm)

Find out from the table — How many centimetres more should Chandra Pal jump to equal the Men's World Record for high jump?

Answer:

We know 1 m = 100 cm Men's world record for high jump = 2 m 45 cm = 2 m + 45 cm = (2

×100) cm + 45 cm = 200 cm + 45 cm = 245 cm High jump record of Chandra Pal = 2 m 17 cm = 2 m + 17 cm = (2

×100) cm + 17 cm = 200 cm + 17 cm = 217 cm Now, we will subtract 217 cm from 245 cm.

245cm-217cm028cmThus, Chandra Pal should jump 28 cm more to equal the men's world record for high jump.

Question 2: Here are the Indian Records and World Records for some jumps.

Sports	*World Record*	*Indian Record*

High Jump (Men)	Javier S. (2m 45 cm)	Chandra Pal (2m 17 cm)
Long Jump (Men)	Mike P. (8m 95 cm)	Amrit Pal (8m 8 cm)
High Jump (Women)	Stefka K. (2m 9 cm)	Bobby A. (1m 91 cm)
Long jump (Women)	Galina C. (7m 52 cm)	Anju G. (6m 83 cm)

Find out from the table — How many centimetres higher should Bobby A. jump to reach 2 metres?

Remember that 1m = 100 cm Half metre =?

Answer:

We know 1 m = 100 cm Thus, 2 m = (2 ×100) cm = 200 cm

High jump of Bobby A. = 1 m 91 cm = 1 m + 91 cm = 100 cm + 91 cm = 191 cm Now, 200 cm − 191 cm = 9 cm

200cm – 191cm 009cm

Thus, Bobby A. should jump 9 centimetres higher to reach 2 metres.

Question 3: Here are the Indian Records and World Records for some jumps.

Sports	*World Record*	*Indian Record*
High Jump (Men)	Javier S. (2m 45 cm)	Chandra Pal (2m 17 cm)
Long Jump (Men)	Mike P. (8m 95 cm)	Amrit Pal (8m 8 cm)
High Jump (Women)	Stefka K. (2m 9 cm)	Bobby A. (1m 91 cm)
Long jump (Women)	Galina C. (7m 52 cm)	Anju G. (6m 83 cm)

Find out from the table — Galina's long jump is nearly (a) 7 metres (b) 7 and a half metres (c) 8 metres

Answer:

Correct: (b) 7 and a half metres Long jump of Galina C. = 7 m 52 cm We know 1 m = 100 cm Half metre = 50 cm Now, Galina C.'s long jump = 7 m + 52 cm = (7

×100) cm + 52 cm = 700 cm + 52 cm = 752 cm We know 7 m = 700 cm 7 and a half metres = 7 m + Half metre = 700 cm + 50 cm = 750 cm 8 m = 800 cm 750 cm is close to 752 cm. Thus, Galina C.'s long jump is nearly seven and a half metres.

Question 4: Here are the Indian Records and World Records for some jumps.

Sports	*World Record*	*Indian Record*
High Jump (Men)	Javier S. (2m 45 cm)	Chandra Pal (2m 17 cm)
Long Jump (Men)	Mike P. (8m 95 cm)	Amrit Pal (8m 8 cm)
High Jump (Women)	Stefka K. (2m 9 cm)	Bobby A. (1m 91 cm)
Long jump (Women)	Galina C. (7m 52 cm)	Anju G. (6m 83 cm)

Find out from the table — Look at the Women's World Records. What is the difference between the longest jump and the highest jump?

Answer:

We know 1 m = 100 cm

Long jump of Galina C. = 7 m 52 cm = (7 ×100) cm + 52 cm = 700 cm + 52 cm = 752 cm

High jump of Stefka K. = 2 m 9 cm = (2 ×100) cm + 9 cm = 200 cm + 9 cm = 209 cm

Now, to find the difference between the longest jump and the highest jump, we have to subtract 209 cm from 752 cm.

752cm – 209cm = 543cm

∴ Difference between the longest jump and the highest jump = 543 cm = 500 cm + 43 cm = (500 ÷100) m + 43 cm = 5 m + 43 cm = 5 m 43 cm

Question 5: Here are the Indian Records and World Records for some jumps.

Sports	*World Record*	*Indian Record*
High Jump (Men)	Javier S. (2m 45 cm)	Chandra Pal (2m 17 cm)
Long Jump (Men)	Mike P. (8m 95 cm)	Amrit Pal (8m 8 cm)
High Jump (Women)	Stefka K. (2m 9 cm)	Bobby A. (1m 91 cm)
Long jump (Women)	Galina C. (7m 52 cm)	Anju G. (6m 83 cm)

Find out from the table — If Mike P. could jump _____ centimetres longer, his jump would be full 9 metres.

Answer:

We know 1 m = 100 cm

Now, 9 m = (9 ×100) cm = 900 cm

High jump of Mike P. = 8 m 95 cm = 8 m + 95 cm = (8 ×100) cm + 95 cm = 800 cm + 95 cm = 895 cm Now, 900 cm − 895 cm = 5 cm

900 – 895 = 005

If Mike P. could jump 5 centimetres longer, his jump would be full 9 metres.

Question 6: Here are the Indian Records and World Records for some jumps.

Sports	*World Record*	*Indian Record*
High Jump (Men)	Javier S. (2m 45 cm)	Chandra Pal (2m 17 cm)
Long Jump (Men)	Mike P. (8m 95 cm)	Amrit Pal (8m 8 cm)
High Jump (Women)	Stefka K. (2m 9 cm)	Bobby A. (1m 91 cm)
Long jump (Women)	Galina C. (7m 52 cm)	Anju G. (6m 83 cm)

Find out from the table — Whose high jump is very close to two and half metres? (a) Stefka K. (b) Chandra Pal (c) Javier S. (d) Bobby A.

Answer:

We know 1 m = 100 cm 0.5 m = 50 cm Two and half metres = 2 m + Half metre = (2 ×100) cm + 50 cm = 200 cm + 50 cm = 250 cm

High jump of Stefka K. = 2 m 9 cm = (2 ×100) cm + 9 cm = 200 cm + 9 cm = 209 cm

High jump of Chandra Pal = 2 m 17 cm = (2 ×100) cm + 17 cm = 200 cm + 17 cm = 217 cm

High jump of Javier S. = 2 m 45 cm = (2 ×100) cm + 45 cm = 200 cm + 45 cm = 245 cm

High jump of Bobby A. = 1 m 91 cm = 100 cm + 91 cm = 191 cm

245 cm is very close to 250 cm.

Thus, the high jump of Javier S. is very close to two and half metres.

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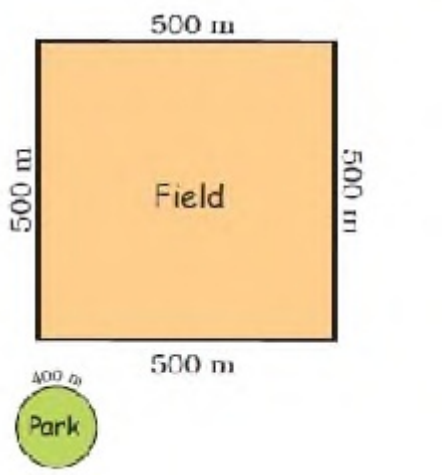
Question 1: Running Exercise

The doctor has told Devi Prasad to run 2 km every day to stay fit. He took one round of this field. How far did he run? The field was very far from his home. So he chose a park nearby. The boundary of the park was about 400 metres long.

• How many rounds of the park must Devi Prasad run to complete 2 km?

• One day the weather was very good and a cool breeze was blowing. He felt so good that he kept jogging till he got tired after 8 rounds. That day he ran _____ km and _____ metres!



Answer:

• Devi Prasad took 1 round of the square field who's each side was 500 m long.

Distance covered to take 1 round of the field = (500 + 500 + 500 + 500) m = 2000 m We know 1000 m = 1 km Thus, 2000 m = 2 km

So, Devi Prasad ran 2 km to take one round of the field as advised by the doctor. Length of the boundary of the park = 400 m

Number of rounds of the park taken by Devi Prasad to run 400 m = 1

Number of rounds of the park taken by Devi Prasad to run 1 m = 1400

Number of rounds of the park taken by Devi Prasad to run 2000 m =

1400× 2000 = 2000 ÷ 400 = 5

We know 2000 m = 2 km

So, Devi Prasad must take 5 rounds in order to complete 2 km.

• Distance covered by Devi Prasad to take 1 round of the park = 400 m

∴ Distance covered by Devi Prasad to take 8 rounds of the park =

400 m × 8 = 3200 m

We know 1000 m = 1 km

∴ 3200 m = 3000 m + 200 m

3200 m = 3 km + 200 m

3200 m = 3 km 200 m

Thus, Devi Prasad ran 3 km 200 m to take 8 rounds of the park.

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Question 1: From Kozhikode to Thalassery

Subodh is going to Kozhikode which is 24 kilometres (km) away. Manjani is going to Thalassery which is 46 km away in the opposite direction. How far is Kozhikode from Thalassery? _____

Answer:

Suppose Subodh and Manjani start from the same point.

Distance of Kozhikode from the starting point = 24 km

Distance of Thalassery from the starting point = 46 km

Subodh is going to Kozhikode and Manjani is going to Thalassery.

Both of them are travelling in opposite directions.

∴ Distance between Kozhikode and Thalassery = (24 + 46) km = 70 km

$$24 + 46 = 70$$

Thus, Kozhikode is 70 km away from Thalassery.

Question 2: How Far is Your Home from School? Momun comes to school from very far. He first walks about 400 metres to the pond. With slippers in his hands, he then walks 150 metres through the pond. Next he runs across the 350 metres wide green field. Then he carefully crosses the 40 metres wide road to reach his school.

How much does Momun walk every day to reach school? _____
Is it more than 1 km? _____

Answer:

Distance covered by Momun to reach the pond = 400 m

Distance covered by Momun while walking through the pond = 150 m

Distance covered by Momun while running across the green field = 350 m

Distance covered by Momun to cross the road = 40 m

Total distance covered by Momun to reach the school = (400 + 150 + 350 + 40) m = 940 m

Momun walks 940 m every day to reach the school.

$$400 + 150 + 350 + 040 = 940$$

We know 1 km = 1000 m

Also, 940 m is less than 1000 m.

So, 940 m is less than 1 km.

Thus, the total distance travelled by Momun to reach the school every day is not more than 1 km.

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Question 1:

• Find out how far your friends live from school and fill the table. Write in metres or kilometres.

Friend's name	*Distance of home from school*

Who among you lives nearest to the school? _____ Who lives farthest from the school? _____ How many children live less than 1 kilometre away from your school? _____

Is there anyone who lives more than 5 km away from the school? How do they come to school? _____

Answer:

Friend's name	*Distance of home from school*
Akshay	6 km
Varun	4 km
Shikhar	9 km
Brijendra	500 m
Pooja	600 m
Gaurav	7 km

- Brijendra lives nearest to the school.
- Shikhar lives farthest from the school.
- There are 2 children—Brijendra and Pooja—who live less than 1 kilometre away from the school.
- There are 3 children—Shikhar, Akshay and Gaurav—who live more than 5 kilometres away from the school. They come to school by school bus.

Disclaimer: *The answer may vary from student to student, based on his/her experience. The answer provided here is for reference only.*