

Y5-6 Maths Homework

23 / 5 / 2022

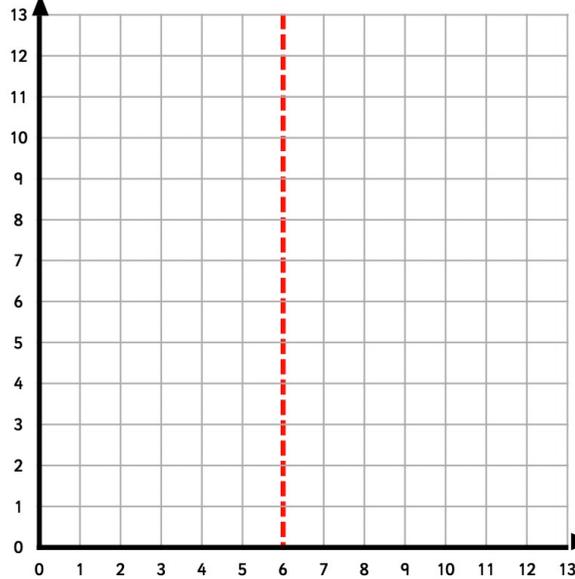


Y5

Reasoning and Problem Solving – Position and Direction – Year 5

Mr Moneybags of WonderWorld Theme Park is installing some new rides in his park and the building deadline is coming up fast. Help him make some important decisions before the inspector arrives at the end of the week – if the extension doesn't pass the inspection, the whole park will be torn down!

1. Mr Moneybags wants all these rides to be on the left side of the park. Plan how you will arrange the rides at the park by plotting each four pairs of coordinates and joining them to show how much space each ride will need.



Ferris Wheel
(1,10) (1,12)
(5,12) (5,10)



Tilt-a-Whirl
(4,0) (4,3)
(6,3) (6,0)



Carousel
(1,2) (1,4)
(3,4) (3,2)

Which ride will take up the most space?

Which ride will take up the least space?

As the crew prepare to install the rides, Mr Moneybags cries, "I have changed my mind! Left is wrong, and right is right! Put the rides on the other side!" The crew scrambles to follow his order.

2. Reflect the rides over the red line on the graph above. Draw their new locations.

"Ah, splendid! I'll have new plans drawn up for you post-haste!" says Mr Moneybags.

Reasoning and Problem Solving – Position and Direction – Year 5

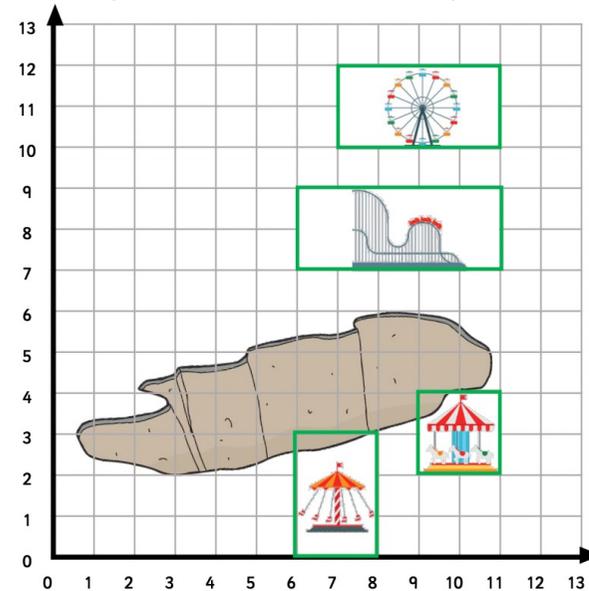
3. Write the old and new coordinates of each ride so the construction crew can get started.

Ride	Old coordinates	New coordinates after reflection
Ferris Wheel	<input type="text"/>	<input type="text"/>
Roller Coaster	<input type="text"/>	<input type="text"/>
Tilt-a-Whirl	<input type="text"/>	<input type="text"/>
Carousel	<input type="text"/>	<input type="text"/>

After working all night, the new attractions were finally up and running. Mr Moneybags arrived early to see them.

"I cannot believe this!" he cried. "A giant sinkhole has appeared in the middle of my park! What kind of terrible luck is this?! The inspector will be here in two days!"

4. Translate any rides that are too close to the sinkhole so they are somewhere safe. Draw them in their new positions so that the size of their plot does not change.

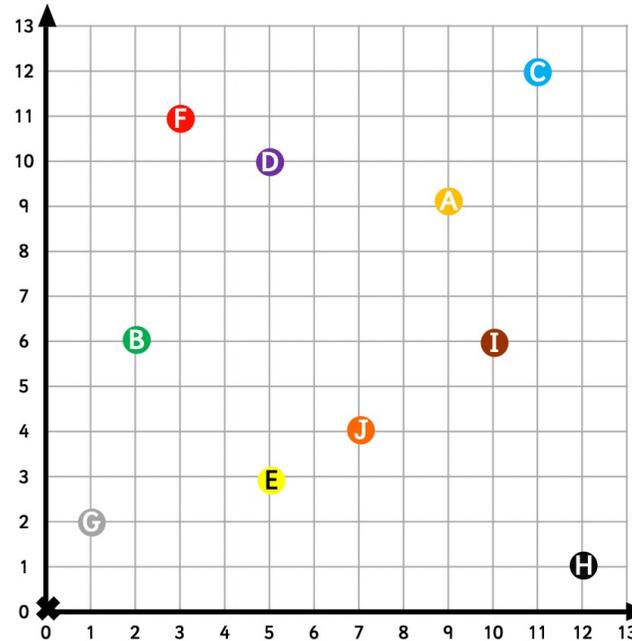


Reasoning and Problem Solving – Position and Direction – Year 5

The crew works through the night to move the rides and fill in the sinkhole. The inspector arrives at the park the next morning. He has given you a list of attractions he wishes to inspect, starting at the ticket office at the entrance of the park, which has been marked with a cross at (0,0).

5. Write the directions he will have to take to move around the park and visit the rides in the following order, starting from (0,0). The first one has been done for you.

- A** Roller Coaster
- B** Rocket Launch
- C** Ferris Wheel
- D** Tilt-a-Whirl
- E** Haunted House
- F** Carousel
- G** Ice Cream Stand
- H** Steam Train Trolley
- I** Hot Air Balloons
- J** Climbing Palace



X to A	9 right, 9 up
A to B	
B to C	
C to D	
D to E	

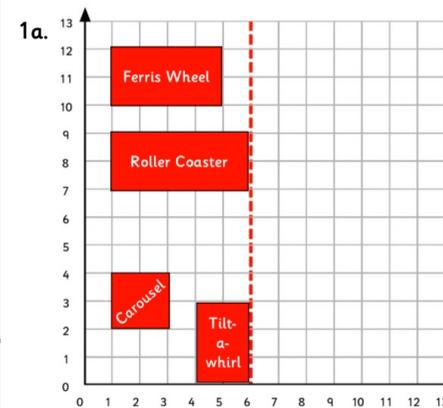
E to F	
F to G	
G to H	
H to I	
I to J	

All your hard work has paid off; the inspector is very happy with the park! Mr Moneybags is delighted with your contribution. See you at the Grand Opening!

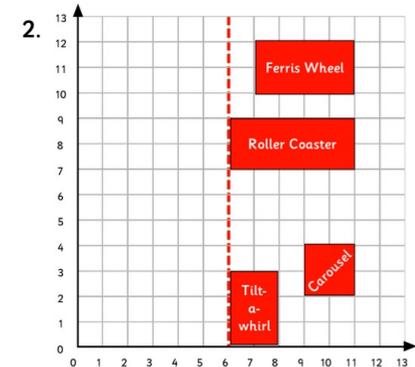
Mark your work

1. Mark last week and this weeks homework
2. Write down your mark
3. Explain: where did you go wrong?

Reasoning and Problem Solving – Position and Direction – Year 5



1b. **Most space: Roller coaster**
Least space: Carousel



3. Ride	Old coordinates	New coordinates after reflection
Ferris Wheel	(1,10) (1,12) (5,12) (5,10)	(7,10) (7,12) (11,12) (11,10)
Roller Coaster	(1,7) (1,9) (6,9) (6,7)	(6,7) (6,9) (11,9) (11,7)
Tilt-a-Whirl	(4,0) (4,3) (6,3) (6,0)	(6,0) (6,3) (8,3) (8,0)
Carousel	(1,2) (1,4) (3,4) (3,2)	(9,2) (9,4) (11,4) (11,2)

4. **Several possible answers. The Carousel and Tilt-a-Whirl should both be translated to the upper-left of the quadrant. Alternatively, there is enough space for one of the rides in the bottom right of the quadrant.**

5. X to A	9 right, 9 up	E to F	2 left, 8 up
A to B	7 left, 3 down	F to G	2 left, 9 down
B to C	9 right, 6 up	G to H	11 right, 1 down
C to D	6 left, 2 down	H to I	2 left, 5 up
D to E	7 down	I to J	3 left, 2 down



Y6

WE'RE HIRING!

Playground Engineers



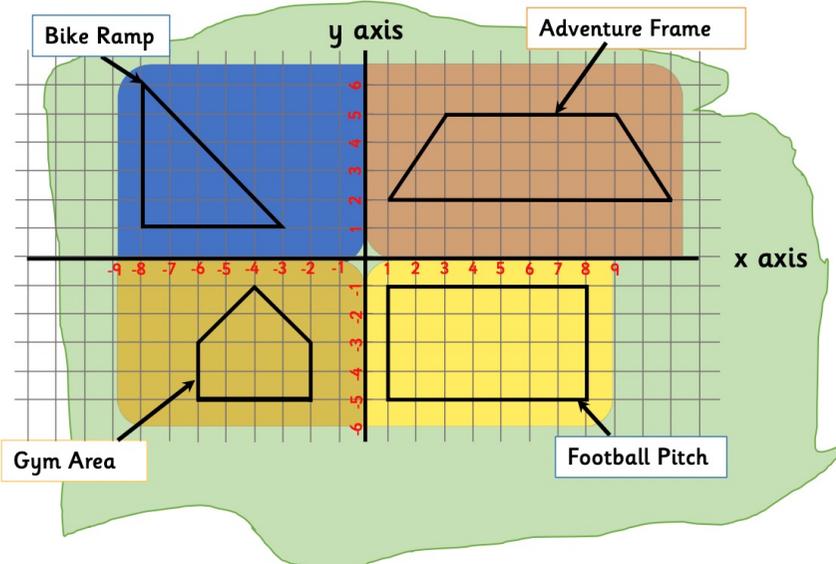
The local council are looking for children to help plan the redevelopment of a major parkland. The area has fallen into disrepair and is posing a risk to the health and safety of those using it.

Have you got what it takes to plan and create an inspiring playground?
The council want to hear from you!

Show your planning credentials by completing the job application pack below.

Here is the map on of the playground space, the areas have been labelled and a grid has been placed over to help with planning.

You will need this to answer questions in the pack below.



1. Write the co-ordinates for the vertices of each piece of large equipment.



Bike Ramp



Adventure Frame



Gym Area



Football Pitch

The council have now reviewed the waterworks and electric services to the area and have realised the bike ramp will run across a large water main. The bike ramp will need to move to avoid crossing the pipe. The section of pipe which crosses the area runs from (-9, 0) to (-7, 7), you will need to move the bike ramp.

2. Which 3 co-ordinates for the ramp will mean the pipe is free from the ramp and easy to access?



Your email is down, you can't send the new plan and the builder needs to get to work. Can you write instructions to describe the translation of the bike ramp? Your assistant will read these to the builder on the phone.

Reasoning and Problem Solving – Position and Direction Consolidation – Year 6

3. The council have had a change of plans and would like to swap the football pitch and the adventure frame to avoid balls hitting people in the park. Reflect the two pieces of equipment and write their new co ordinates below?



Adventure Frame



Football Pitch

What do you notice about your new coordinates? Compare them to your previous answers:

The council have had a complaint about the plans from a local resident, they feel the bike ramps will be visible from their garden and create an eyesore.

4. The ramps will need to be moved further away and so will be swapped with the football pitch. Using the new coordinates of the football pitch above and the original coordinates of the bike ramp, reflect them across the y axis. What are the new coordinates for the two structures?



Bike Ramp



Football Pitch

Will the gym interfere with the pipe mentioned earlier?

Congratulations YOU GOT THE JOB!

Mark your work

1. Mark this weeks homework

2. Write down your mark

3. Explain: where did you go wrong?

Reasoning and Problem Solving – Position and Direction Consolidation – Year 6

1. Coordinates for each area could be written in any order

Bike Ramp	(-8, 6)	(-8, 1)	(-3, 1)		
Adventure Frame	(1, 2)	(3, 5)	(9, 5)	(11, 2)	
Gym Area	(-4, -1)	(-2, -3)	(-2, -5)	(-6, -5)	(-6, -3)
Football Pitch	(1, -1)	(8, -1)	(8, -5)	(1, -5)	

2. (-6, 6) (-6, 1) (-1, 1)

Move the bike ramp 2 squares to the right, or add 2 to the x axis coordinate.

3.

Adventure Frame	(1, -2)	(3, -5)	(9, -5)	(11, -2)
Football Pitch	(1, 1)	(8, 1)	(8, 5)	(1, 5)

Only the y axis coordinates change and the negative values become positive, the positive values become negative.

4.

Bike Ramp	(-8, 6)	(-8, 1)	(-3, 1)	
Football Pitch	(1, 1)	(8, 1)	(8, 5)	(1, 5)

Will the gym interfere with the pipe mentioned earlier? **Yes**