

Crossing the River

Names _____

1. On the bank of a river are 1 adult, 2 children and 1 very small rowboat. We want to get all of the people across the river, by rowing.

The boat will hold

- 2 children, or
- a single child, or
- a single adult.

All of the people can row. 'One trip' means rowing the boat across the river in either direction.

What is the smallest number of trips it takes to get all of the people across the river? Explain how you did it.

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2. On the bank of a river are 2 adults, 2 children and 1 very small rowboat. We want to get all of the people across the river, by rowing.

How many trips does it take to get all of the people across the river?

Explain how you did it

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3. What is the answer if there were 3 adults and 2 children?

4. Is there a pattern to your answers? Explain.

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5. Complete the following table.

Number of Adults	Number of Children	Number of Trips
1	2	
2	2	
3	2	
4	2	
5	2	
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6. What is the rule for *any* number of adults, with 2 children?

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7. Explain *why* the rule works.

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a. How many adults are there if it takes 17 trips?

b. How many adults are there if it takes 61 trips?

c. Explain how you figured out your answers

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d. It is not possible to answer this question, "How many adults are there if it takes 27 trips?". Explain why.

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Crossing the River with Three Children

1. On the bank of a river are 1 adult, 3 children and 1 very small rowboat. We want to get all of the people across the river, by rowing.

The boat will hold

- 2 children, or
- a single child, or
- a single adult.

All of the people can row. 'One trip' means rowing the boat across the river in either direction.

What is the smallest number of trips it takes to take to get all of the people across the river? Explain how you did it.

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2. On the bank of a river are 2 adults, 3 children and 1 very small rowboat. We want to get all of the people across the river, by rowing.

How many trips does it take to get all of the people across the river?

Explain how you did it

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3. Complete the following table.

Number of Adults	Number of Children	Number of Trips
1	3	
2	3	
3	3	
4	3	
5	3	
50	3	

4. What is the rule for *any* number of adults, with 3 children?

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5. Explain *why* the rule works.

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6. Now assume there are 4 children. Complete this table.

Number of Adults	Number of Children	Number of Trips
1	4	
2	4	
3	4	
4	4	
5	4	
50	4	

7. What is the rule for *any* number of adults, with 4 children?

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8. Now assume there are 5 children. Complete this table.

Number of Adults	Number of Children	Number of Trips
1	5	
2	5	
3	5	
4	5	
5	5	
50	5	

9. What is the rule for *any* number of adults, with 5 children?

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Mega Genius Question

10. What is the rule for *any* number of adults, with *any* number of children?

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