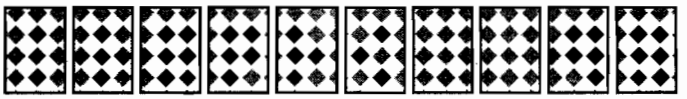
Card Game

This problem gives you the chance to:
• figure out and explain probabilities

T1

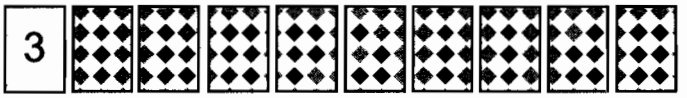
Mrs Jakeman is teaching her class about probability.
She has ten cards, numbered 1 to 10.
She mixes them up and stands them on a shelf so that the numbers do not show.



Mrs. Jakeman turns the cards around one at a time.

Students have to guess whether the next card will have a higher or a lower number than the one just turned.

The first card turned is the number 3.

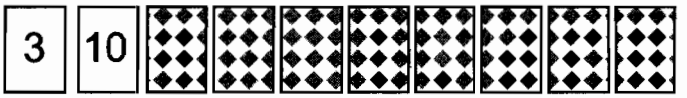


1. Would you expect the next number to be higher than 3 or lower? ✓

   Explain why you made this decision.

   I believe it is going to be higher because there are only 2 digits behind three and 7 above 3. ✓ 1

The second card is number 10.



1

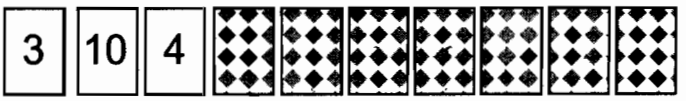
2. What is the probability that the next card will be a higher number than 10? 0% ✓

   Explain how you know.

   because there are not higher digits then 10 in the cards. ✓ 1

1 2 3 4 5 6 7 8 9 10 / T1

The third card is number 4.

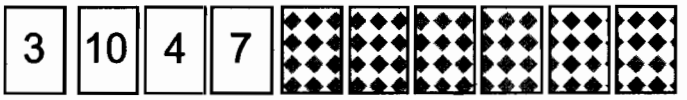


3. What is the probability that the next number is higher than 4?
   Show your work.

5/7 ✓ 1

1

The fourth card is number 7.

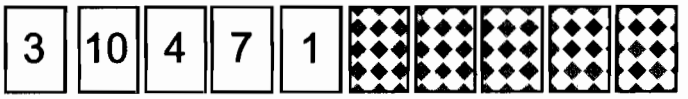


4. What is the probability that the next number is lower than 7?
   Show your work.

4/6 ✓ 1

1 2 3 4 5 6 7 8 9 10 1

The fifth card is the number 1.



When the sixth card is turned the probability that the next card is higher is the same as the probability that it is lower.

5. What must the sixth card be?

   Explain how you figured it out.

I believe the next number will be a, 6, 0, 8, or 9 because first there is a number below 5 and then higher then five and so on 0 So the next number will be above 5.

7

9

Card Game

This problem gives you the chance to:
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T2

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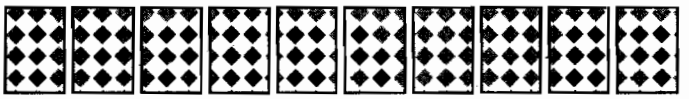

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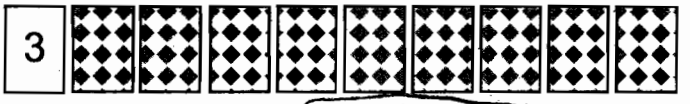


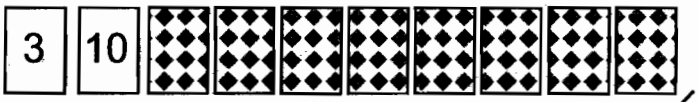
1 2 3 4 5 6 7 8 9 10

1. Would you expect the next number to be higher than 3 or lower? higher ✓ 1

   Explain why you made this decision.

   I made this decision because there are only 2 numbers lower than 3 and there is 7 numbers higher than 3. There are more higher numbers that is why I picked higher. ✓

The second card is number 10.



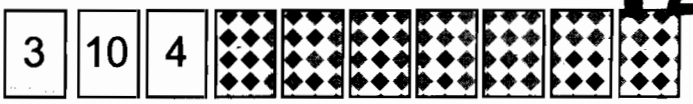
2. What is the probability that the next card will be a higher number than 10? $\frac{0}{8}$ ✓ 1

   Explain how you know.

   I Know this because there is only 10 numbers & it only goes to 10 so there can't be a higher number than 10. ✓ 1

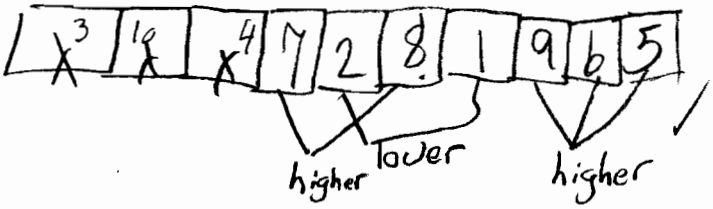
T2

The third card is number 4.



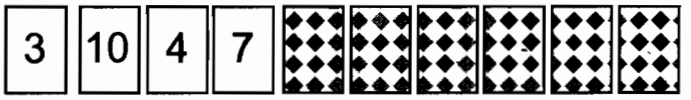
3. What is the probability that the next number is higher than 4?
Show your work.

$\frac{5}{7}$ ✓ 1



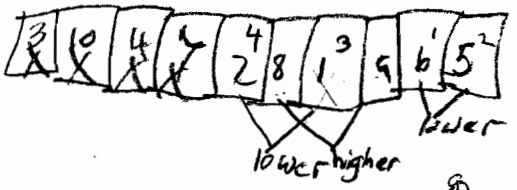
1 ✓ 1

The fourth card is number 7.



4. What is the probability that the next number is lower than 7?
Show your work.

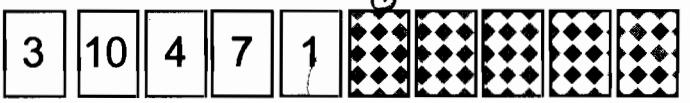
$\frac{4}{6}$ ✓ 1



1

8 2 ✓

The fifth card is the number 1.



When the sixth card is turned the probability that the next card is higher is the same as the probability that it is lower.

5. What must the sixth card be?

8 x 0

Explain how you figured it out.

I figured this out because there is only one number above the 8 and the other number is 1 so it matches it. 0

x

(7)

9

Card Game

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T3

Mrs Jakeman is teaching her class about probability.
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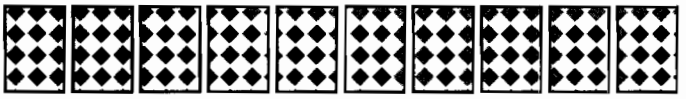

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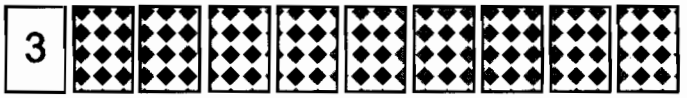
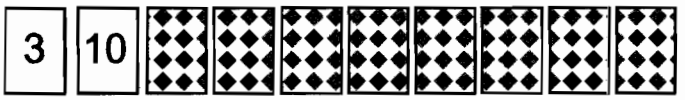


1. Would you expect the next number to be higher than 3 or lower? higher ✓

   Explain why you made this decision.

   There are more numbers higher than 3 from 1-10 than there are lower than 3. ✓ 1

The second card is number 10.



2. What is the probability that the next card will be a higher number than 10? 0% ✓ 1

   Explain how you know.

   There are no numbers over 10 with cards numbered 1-10 ✓ 1

T3

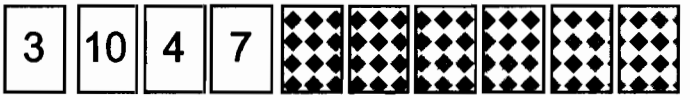
The third card is number 4.

3. What is the probability that the next number is higher than 4? 71% ✓ 1
Show your work.

.714
7|5.000
49
10
7
30

0

The fourth card is number 7.

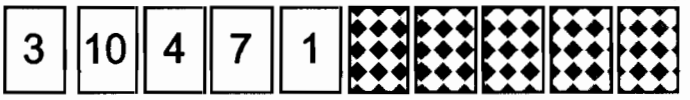


4. What is the probability that the next number is lower than 7? 66⅔% ✓ 1
Show your work.

.66
6|4.00
36
40

0

The fifth card is the number 1.



When the sixth card is turned the probability that the next card is higher is the same as the probability that it is lower.

5. What must the sixth card be? X2345 ⑥78910 6 ✓ 1

Explain how you figured it out.

I lined the numbers up from 1-10, crossed out the numbers that were already used, and took the middle number. ✓ 1

7

9

Card Game

This problem gives you the chance to:
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T4

Mrs Jakeman is teaching her class about probability.
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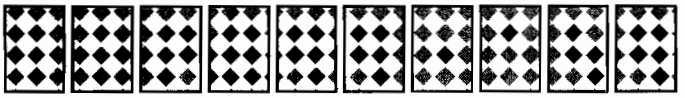

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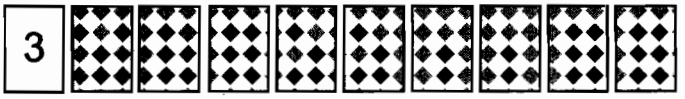
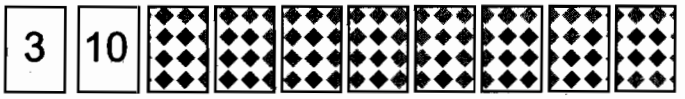


1. Would you expect the next number to be higher than 3 or lower? Higher ✓

   Explain why you made this decision.

   because 3 is a low number and Its at the begining so the End Should be higher. ✓ 1

The second card is number 10.



2. What is the probability that the next card will be a higher number than 10? 0 ✓ 1

   Explain how you know.

   There is only 10 cards + the highest number is 10 so there Cant be anymore numbers Higher 1

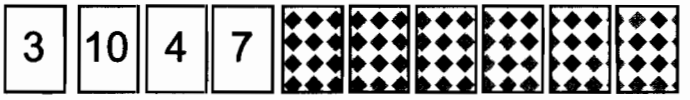
T4

The third card is number 4.

3. What is the probability that the next number is higher than 4? 5/7 ✓ 1
Show your work.

there is 10 cards 3 are flipped you count the non flipped ones for the ✓ 1 denominator and the ones left above 4 for the numerator

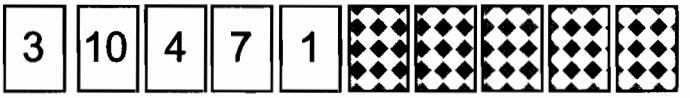
The fourth card is number 7.



4. What is the probability that the next number is lower than 7? 2/4 = 1/2 ✓ 0
Show your work.

there are only 2 number left that arent already flipped 2 Less than 4. ✓ 0

The fifth card is the number 1.



When the sixth card is turned the probability that the next card is higher is the same as the probability that it is lower.

5. What must the sixth card be? Higher ✓ 0

Explain how you figured it out.

because there is one more card that is a low number and the rest are Higher ✓ 0

9 (5)

Card Game

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T5

Mrs Jakeman is teaching her class about probability.
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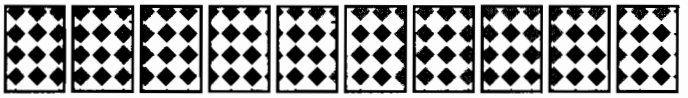

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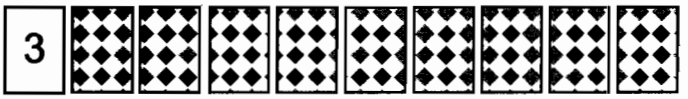


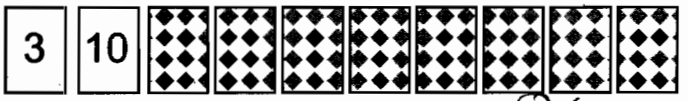
1. Would you expect the next number to be higher than 3 or lower?

higher ✓

Explain why you made this decision.

I would expect the next number to be higher because there is a 7/10 chance of getting a lower number and a 7/10 chance of getting a higher number ✓

The second card is number 10.



✓

2. What is the probability that the next card will be a higher number than 10?

0/10 or 0 ✓

Explain how you know.

I know that it will be a 0/10 chance because there are only cards 1-10 so there is no higher number than ten. ✓✓

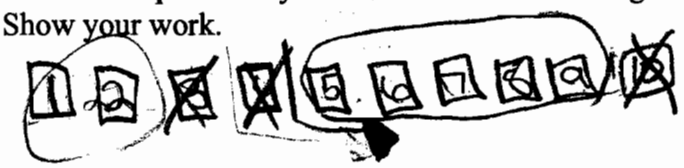
T5

The third card is number 4.

3	10	4							

3. What is the probability that the next number is higher than 4?
   Show your work.

7/10 × 0

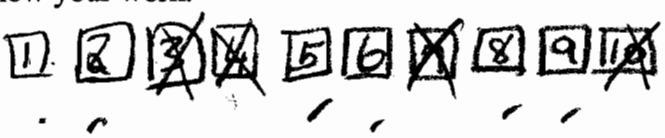


The fourth card is number 7.

3	10	4	7						

4. What is the probability that the next number is lower than 7?
   Show your work.

4/6



The fifth card is the number 1.

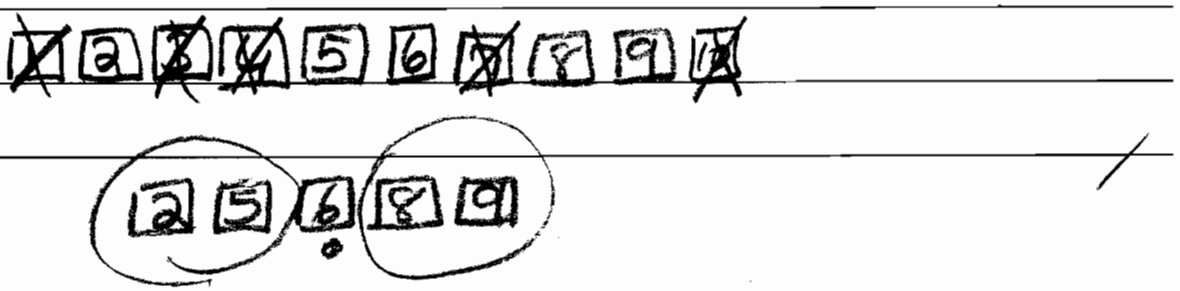
3	10	4	7	1					

When the sixth card is turned the probability that the next card is higher is the same as the probability that it is lower.

5. What must the sixth card be?

6

Explain how you figured it out.



9 (8)

Card Game

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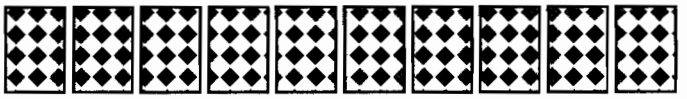

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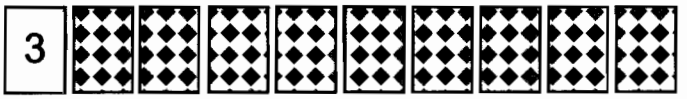
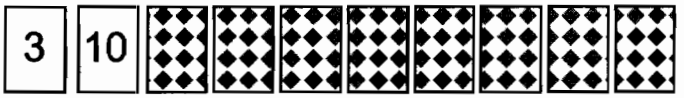


1. Would you expect the next number to be higher than 3 or lower? higher /

   Explain why you made this decision.

   because the only numbers less than 3 is 1, 2 while / there are 7 other numbers higher than 3. 1

The second card is number 10.

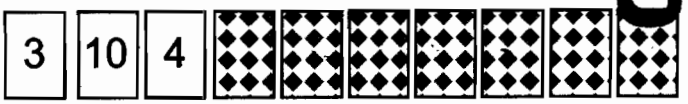


2. What is the probability that the next card will be a higher number than 10? None / 1

   Explain how you know.

   because it goes 1 to 10 and 10 is the highest card you could get. / 1

The third card is number 4.



3. What is the probability that the next number is higher than 4?
Show your work.

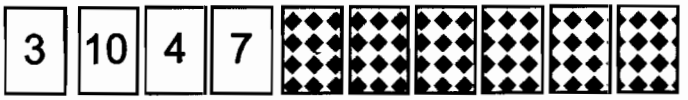
$\frac{5}{7}$ 1

10-3=7 Total

1 2 3 4 5 6 7 8 9 10 1

7-2=5

The fourth card is number 7.

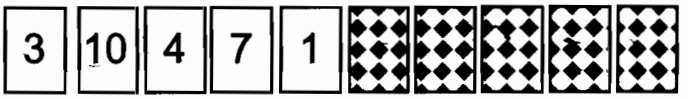


4. What is the probability that the next number is lower than 7?
Show your work.

$\frac{4}{6}$ 1

1 2 3 4 5 6 7 8 9 10 1

The fifth card is the number 1.



When the sixth card is turned the probability that the next card is higher is the same as the probability that it is lower.

5. What must the sixth card be?

1 2 3 4 5 6 7 8 9 10

2 5 6 8 9

$\frac{5}{5}$ x 0

Explain how you figured it out.

6 ✓ It is 6 because there is 2 lower numbers and 2 higher numbers ✓ 1

8 9

Card Game

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S2

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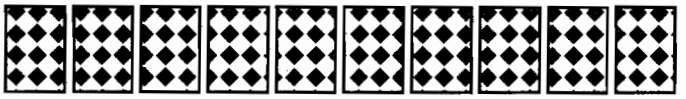

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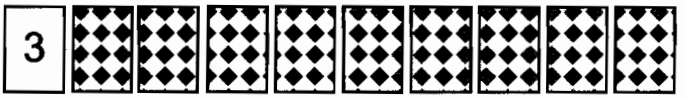
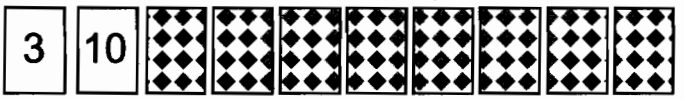


1. Would you expect the next number to be higher than 3 or lower? higher ✓

   Explain why you made this decision.

   there are more numbers 1-10 going higher from 3 than there are going lower ✓ 1

The second card is number 10.



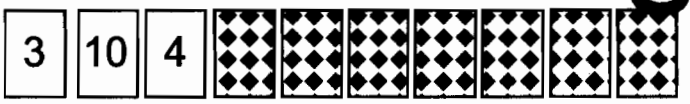
2. What is the probability that the next card will be a higher number than 10? 0 ✓ 1

   Explain how you know.

   Mrs. Jakeman didn't put any cards out that are higher than 10. ✓ 1

S2

The third card is number 4.



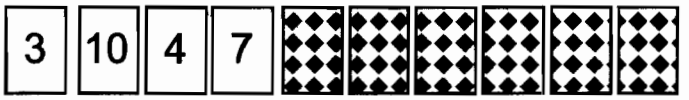
3. What is the probability that the next number is higher than 4?
Show your work. 3 is gone 10 is gone
1 2 3 4 5 6 7 8 9 10

$\frac{5}{7}$ ✓ 1

1

/

The fourth card is number 7.



4. What is the probability that the next number is lower than 7?
Show your work.
1 2 3 4 5 6 7 8 9 10

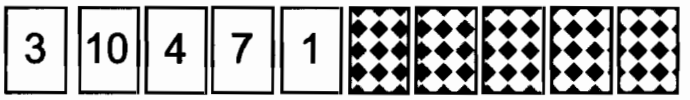
$\frac{4}{6} = \frac{2}{3}$ 1

/

/

1

The fifth card is the number 1.



When the sixth card is turned the probability that the next card is higher is the same as the probability that it is lower.

5. What must the sixth card be?

$\frac{1}{2}$ X 0

Explain how you figured it out.

There are the same number flipped as there is left. $\frac{5}{10} = \frac{1}{2}$. X 0

1 2 3 4 5 6 7 8 9 10

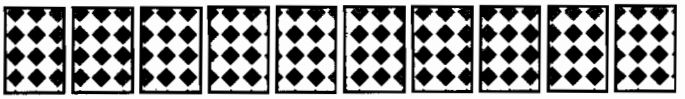
7

Card Game

This problem gives you the chance to:
• figure out and explain probabilities

S3

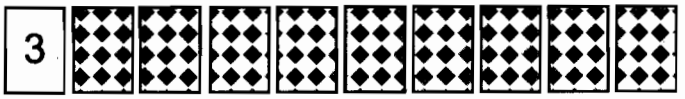
Mrs Jakeman is teaching her class about probability.
She has ten cards, numbered 1 to 10.
She mixes them up and stands them on a shelf so that the numbers do not show.



Mrs. Jakeman turns the cards around one at a time.

Students have to guess whether the next card will have a higher or a lower number than the one just turned.

The first card turned is the number 3.

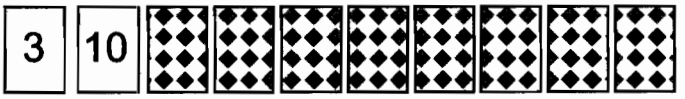


1. Would you expect the next number to be higher than 3 or lower? _____

   Explain why you made this decision.

   I would expect it to be higher ✓ 0
   because a lot of times in this situation
   you would normally get a higher number

The second card is number 10.

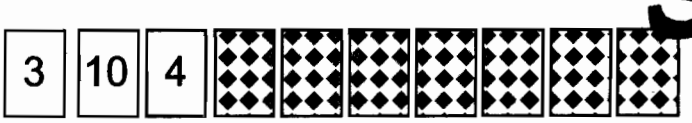


2. What is the probability that the next card will be a higher number than 10? 0 / 1

   Explain how you know.

   I know this because Mrs. Jakeman
   numbers the cards 1-10, so there is only 1
   one 10

The third card is number 4.



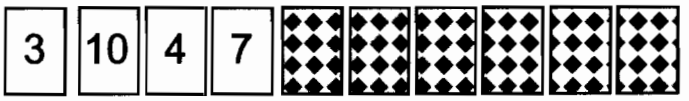
3. What is the probability that the next number is higher than 4?
   Show your work.

5/7 ✓ 1

1 2 3 4
5 6 7 8 9 10
2 #'s
5 #'s

✓ 1

The fourth card is number 7.



4. What is the probability that the next number is lower than 7?
   Show your work.

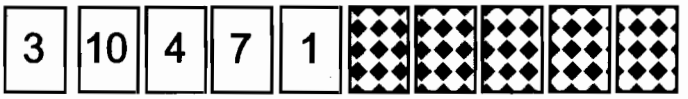
4/6 ✓ 1

1 2 3 4 5 6
Lower → 4 #'s

7 8 9 10
#2 < Higher

✓ 1

The fifth card is the number 1.



When the sixth card is turned the probability that the next card is higher is the same as the probability that it is lower.

5. What must the sixth card be?

5 ✗ 0

Explain how you figured it out.

five is halfway between zero and ten therefore the probability of less and greater will be the same.

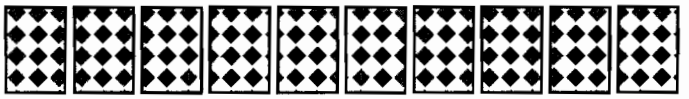
9 (6)

Card Game

This problem gives you the chance to:
• figure out and explain probabilities

S4

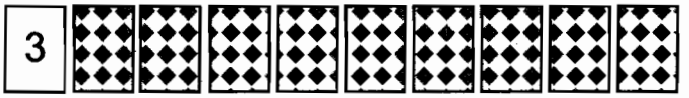
Mrs Jakeman is teaching her class about probability.
She has ten cards, numbered 1 to 10.
She mixes them up and stands them on a shelf so that the numbers do not show.



Mrs. Jakeman turns the cards around one at a time.

Students have to guess whether the next card will have a higher or a lower number than the one just turned.

The first card turned is the number 3.

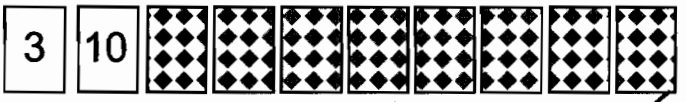


1. Would you expect the next number to be higher than 3 or lower? higher ✓ 1

   Explain why you made this decision.

   The ? is only two cards lower than 3 and 7 cards higher. ✓

The second card is number 10.

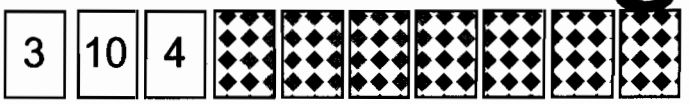


2. What is the probability that the next card will be a higher number than 10? 0/8 ✓ 1

   Explain how you know.

   There are no cards that can be higher than 10 ✓ 1

The third card is number 4.



3. What is the probability that the next number is higher than 4?
   Show your work.

5/7 ✓ 1

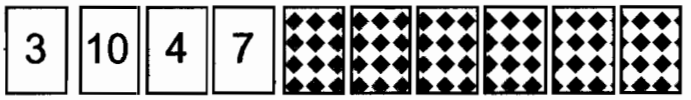
10-3=7

5/7

X,2,3,4,5,6,7,8,9,10
1 2 3 4 (5)

1

The fourth card is number 7.



4. What is the probability that the next number is lower than 7?
   Show your work.

4/6 ✓ 1

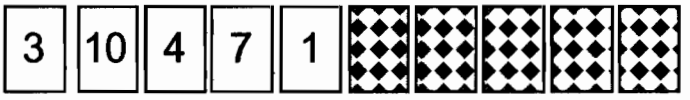
(4) 3 2 3 4 2 5 1 6 7 8 9 10

4 10-4=6

6

1

The fifth card is the number 1.



When the sixth card is turned the probability that the next card is higher is the same as the probability that it is lower.

5. What must the sixth card be?

6 ✓ 1

Explain how you figured it out.

If you take out everything you have left and mark the middle one out. 1

X, 2, 3, 4, 5, (6), 7, 8, 9, 10 ✓
1 2 1 2

2,5 (6) 8,9
2,1 1 2

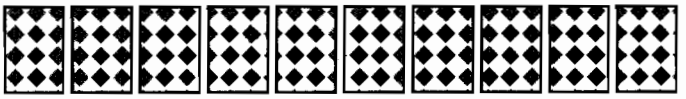
9 (9)

Card Game

This problem gives you the chance to:
• figure out and explain probabilities

S5

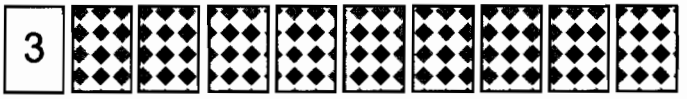
Mrs Jakeman is teaching her class about probability.
She has ten cards, numbered 1 to 10.
She mixes them up and stands them on a shelf so that the numbers do not show.



Mrs. Jakeman turns the cards around one at a time.

Students have to guess whether the next card will have a higher or a lower number than the one just turned.

The first card turned is the number 3.

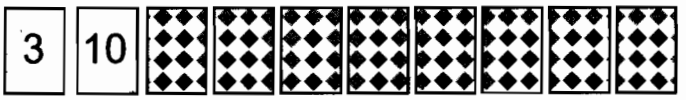


1. Would you expect the next number to be higher than 3 or lower? higher ✓

   Explain why you made this decision.

   3 is 1/10. The higher numbers is 5/10 = 1/2, ✗ the lower numbers is 4/10 = 2/5. There is a greater chance of getting a higher number, because there are more of them. 0

The second card is number 10.



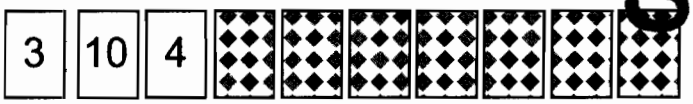
2. What is the probability that the next card will be a higher number than 10? 0 ✓ 1

   Explain how you know.

   Mrs. Jakeman has 10 cards, numbered 1-10. She can't get a higher number than 10. ✓ 1

S5

The third card is number 4.

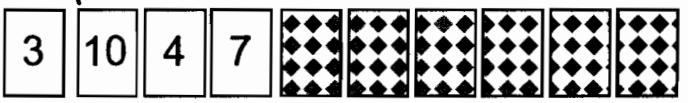


3. What is the probability that the next number is higher than 4?
Show your work.

5/10 or 5/7 x 0

5 6 7 8 9 = 5 cards has yet to be flipped.
7 cards are left unflipped. ✓ 1

The fourth card is number 7.

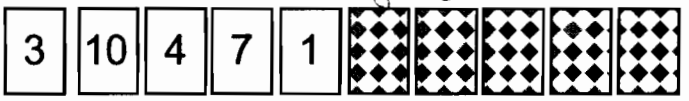


4. What is the probability that the next number is lower than 7?
Show your work.

4/10 or 4/6 0
x

6 5 2 1 = are the numbers left that have not been flipped. ✓ 1
6 are left unflipped.

The fifth card is the number 1.



When the sixth card is turned the probability that the next card is higher is the same as the probability that it is lower.

5. What must the sixth card be?

2 x 0

Explain how you figured it out.

There would be 4 cards that are lower, and 3 cards that are higher. 5 is the 7th card to be flipped. 5 can be lower or higher in probability. 0
x

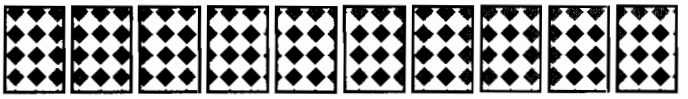
(4) 9

Card Game

This problem gives you the chance to:
• figure out and explain probabilities

S6

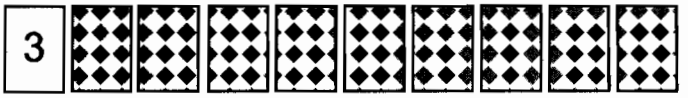
Mrs Jakeman is teaching her class about probability.
She has ten cards, numbered 1 to 10.
She mixes them up and stands them on a shelf so that the numbers do not show.



Mrs. Jakeman turns the cards around one at a time.

Students have to guess whether the next card will have a higher or a lower number than the one just turned.

The first card turned is the number 3.

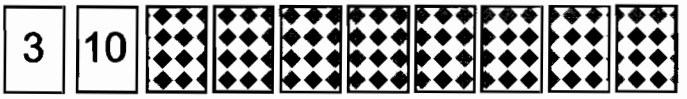


1. Would you expect the next number to be higher than 3 or lower? Higher ✓

   Explain why you made this decision.

   To me if there is a lower number card drawn, I think the next one would be higher. X 0

The second card is number 10.



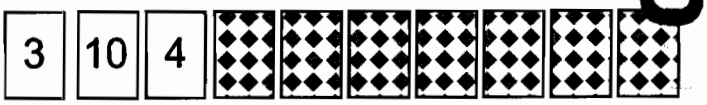
2. What is the probability that the next card will be a higher number than 10? 0 ✓ 1

   Explain how you know.

   Because she only has 10 cards and they are all 1-10. So there can't be a number that's higher than 10. ✓ 1

S6

The third card is number 4.



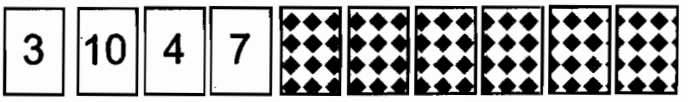
3. What is the probability that the next number is higher than 4?
   Show your work.

6/10 X 0

1234/5678910

6/10 X 0

The fourth card is number 7.



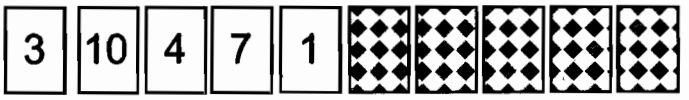
4. What is the probability that the next number is lower than 7?
   Show your work.

4/6 ✓1

4 2 3 5 6 7

X 0

The fifth card is the number 1.



When the sixth card is turned the probability that the next card is higher is the same as the probability that it is lower.

5. What must the sixth card be?

   6 ✓1

   Explain how you figured it out.

X 2 3 4 5 6 7 8 9 10

I wrote out 1-10 then I marked out all the one's that have been used and I had 2,5,6,8,9 left ✓1

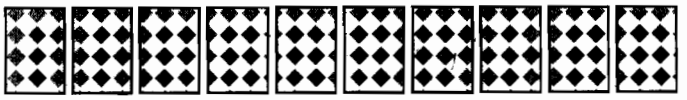
(5)

Card Game

This problem gives you the chance to:
• figure out and explain probabilities

S7

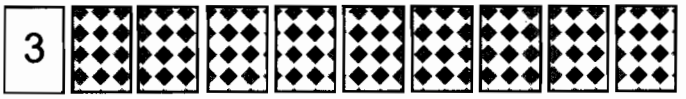
Mrs Jakeman is teaching her class about probability.
She has ten cards, numbered 1 to 10.
She mixes them up and stands them on a shelf so that the numbers do not show.



Mrs. Jakeman turns the cards around one at a time.

Students have to guess whether the next card will have a higher or a lower number than the one just turned.

The first card turned is the number 3.

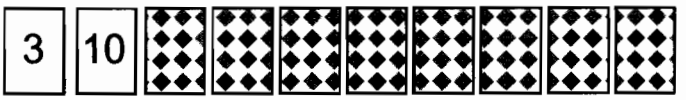


1. Would you expect the next number to be higher than 3 or lower? higher ✓ (

   Explain why you made this decision.

   It would proparbly be higher because there are more possible cards to flip higher than lower. ✓

The second card is number 10.



✓1

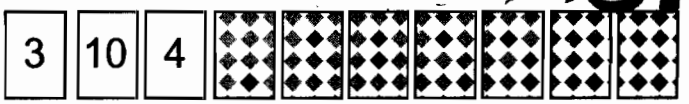
2. What is the probability that the next card will be a higher number than 10? 0/8

   Explain how you know.

   I know this because there is no card higher than "10." ✓)

S7

The third card is number 4.



3. What is the probability that the next number is higher than 4?
Show your work.

123 | 56789x

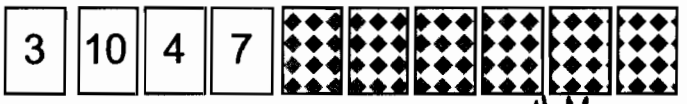
$\frac{5}{9}$ chance higher

0

0

$\frac{5}{7}$

The fourth card is number 7.



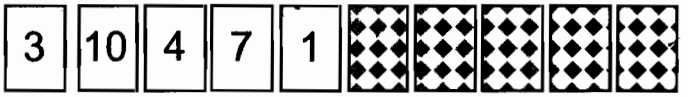
4. What is the probability that the next number is lower than 7?
Show your work.

$\frac{4}{7}$ chance higher ×0

1 2 (5) 6 7 8 9

higher as lower 0

The fifth card is the number 1.



1 2 5 6 8 9

When the sixth card is turned the probability that the next card is higher is the same as the probability that it is lower.

5. What must the sixth card be?

6 ✓ 1

Explain how you figured it out.

I figured this out by getting the median of the numbers left, 2, 5, 6, 8, 9. The number six has the same probibility higher than lower. ✓

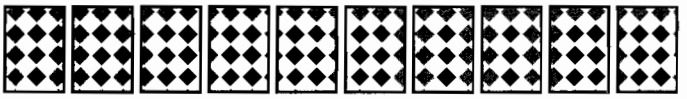
(5)

Card Game

This problem gives you the chance to:
• figure out and explain probabilities

S8

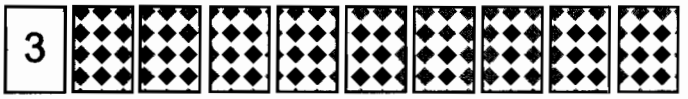
Mrs Jakeman is teaching her class about probability.
She has ten cards, numbered 1 to 10.
She mixes them up and stands them on a shelf so that the numbers do not show.



Mrs. Jakeman turns the cards around one at a time.

Students have to guess whether the next card will have a higher or a lower number than the one just turned.

The first card turned is the number 3.

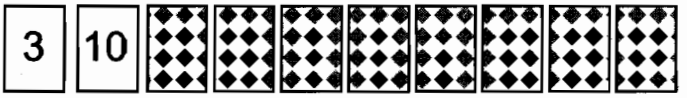


1. Would you expect the next number to be higher than 3 or lower? Higher

   Explain why you made this decision.

   Higher because there is only 2 numbers less than three and 7 numbers that are higher

The second card is number 10.

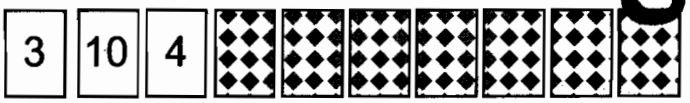


2. What is the probability that the next card will be a higher number than 10? 0/10

   Explain how you know.

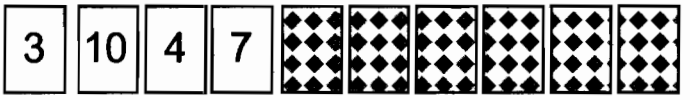
   There is no number above ten in the cards

The third card is number 4.



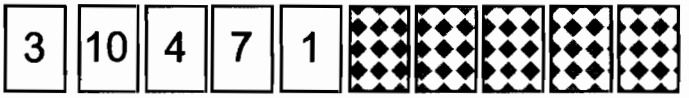
3. What is the probability that the next number is higher than 4? 5/7 ✓ 1
   Show your work.
   1 2 3 4 5 6 7 8 9 10 ✓ 1

The fourth card is number 7.



4. What is the probability that the next number is lower than 7? 4/6 ✓ 1
   Show your work.
   1 2 5 6 ✓ 1
   There are 4 numbers left under 7

The fifth card is the number 1.



When the sixth card is turned the probability that the next card is higher is the same as the probability that it is lower.

5. What must the sixth card be? 5, 2, 6, 9, 8 6 ✓ 1
   Explain how you figured it out.
   1 is the lowest number and only numbers left are 5, 2, 6, 5, 8 ✓ 1

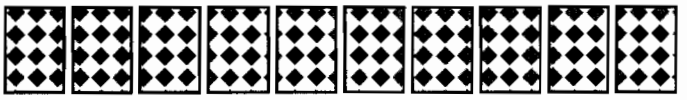
(9) 9

Card Game

This problem gives you the chance to:
• figure out and explain probabilities

S9

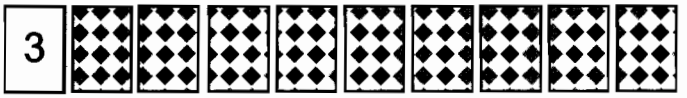
Mrs Jakeman is teaching her class about probability.
She has ten cards, numbered 1 to 10.
She mixes them up and stands them on a shelf so that the numbers do not show.



Mrs. Jakeman turns the cards around one at a time.

Students have to guess whether the next card will have a higher or a lower number than the one just turned.

The first card turned is the number 3.

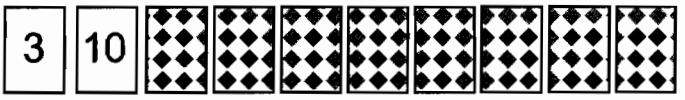


1. Would you expect the next number to be higher than 3 or lower? higher ✓

   Explain why you made this decision.

   Because there is a 2 out of 10 ✗ chance of being a lower number and there is a 7 out of 10 chance of getting a higher number ✓ 0

The second card is number 10.

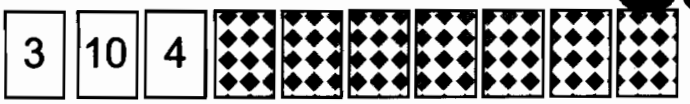


2. What is the probability that the next card will be a higher number than 10? 0 ✓ 1

   Explain how you know.

   Because there is no higher number than 10 in the deck of cards. ✓

The third card is number 4.

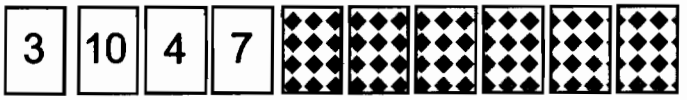


3. What is the probability that the next number is higher than 4?
Show your work.

5/7 ✓ 1

^ 0

The fourth card is number 7.

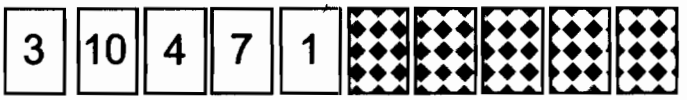


4. What is the probability that the next number is lower than 7?
Show your work.

4/6 ✓ 1

^ 0

The fifth card is the number 1.



When the sixth card is turned the probability that the next card is higher is the same as the probability that it is lower.

5. What must the sixth card be?

6 ✓ 1

Explain how you figured it out.

I guessed ^ 0

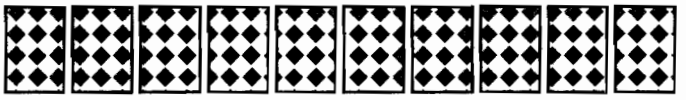
(5) 9

Card Game

This problem gives you the chance to:
• figure out and explain probabilities

S10

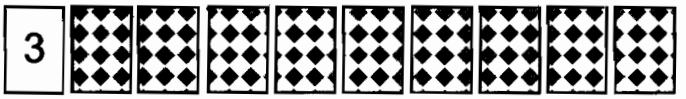
Mrs Jakeman is teaching her class about probability.
She has ten cards, numbered 1 to 10.
She mixes them up and stands them on a shelf so that the numbers do not show.



Mrs. Jakeman turns the cards around one at a time.

Students have to guess whether the next card will have a higher or a lower number than the one just turned.

The first card turned is the number 3.

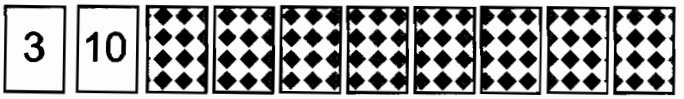


1. Would you expect the next number to be higher than 3 or lower? higher ✓ 1

   Explain why you made this decision.

   There are 7 cards higher than 3 and only 2 lower. ✓

The second card is number 10.



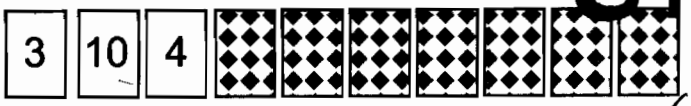
2. What is the probability that the next card will be a higher number than 10? 0 ✓ 1

   Explain how you know.

   10 is the highest number. ✓ 1

S10

The third card is number 4.



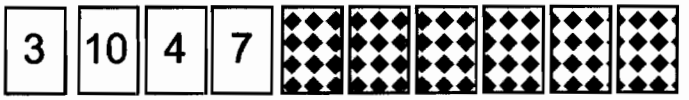
5/7 ✓ 1

3. What is the probability that the next number is higher than 4?
Show your work.

5 cards are higher than 4 so 5/7. 1

7 cards
card #
1 2 ~~X X~~ 5 6 7 8 9 ~~X~~ ✓

The fourth card is number 7.



1

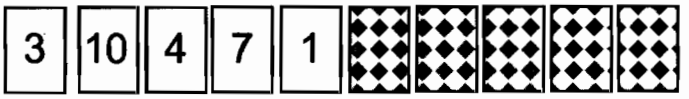
2/3 ✓

4. What is the probability that the next number is lower than 7?
Show your work.

4 card are lower than 7 so 4/6 = 2/3 1

6 cards
1 2 ~~X X~~ 5 6 ~~X~~ 8 9 ~~X~~ ✓

The fifth card is the number 1.



When the sixth card is turned the probability that the next card is higher is the same as the probability that it is lower. 1

6 ✓

5. What must the sixth card be?

Explain how you figured it out.

2 & 5 are lower and 8 & 9 are both higher than 6. 1

✓

~~X~~ 1/2 | ~~X X~~ 3/5 | (6) | ~~X~~ 1/8 | 2/9 | ~~X~~

9 (9)