Challenge

Look at a set of dominoes with the double blank removed, that is: [|]

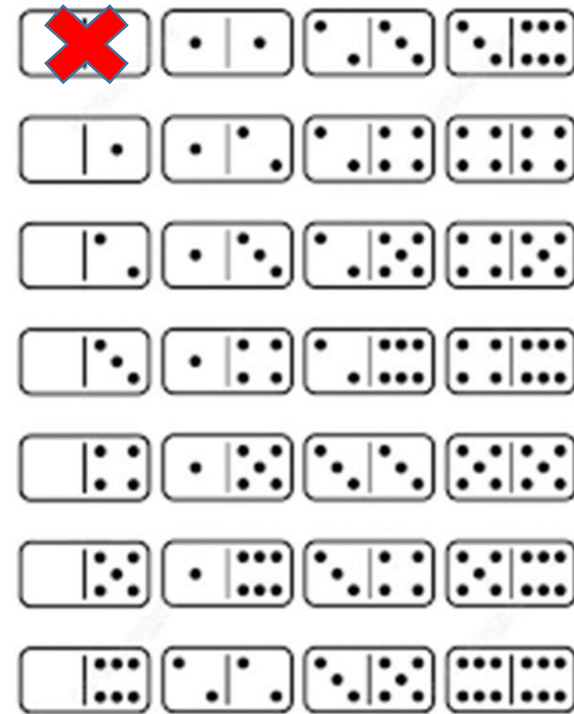Count the total number of dots on each domino. [domino 3|6] $3 + 6 = 9$

What fraction of the dominoes have totals that are an even number?

What fraction of the dominoes have totals that are an odd number?

What is the ratio of even totals to odd totals?

You will need:
• set of 6 × 6 dominoes

$0 + 1 = 1$	$1 + 1 = 2$	$2 + 3 = 5$	$3 + 6 = 9$
$0 + 2 = 2$	$1 + 2 = 3$	$2 + 4 = 6$	$4 + 4 = 8$
$0 + 3 = 3$	$1 + 3 = 4$	$2 + 5 = 7$	$4 + 5 = 9$
$0 + 4 = 4$	$1 + 4 = 5$	$2 + 6 = 8$	$4 + 6 = 10$
$0 + 5 = 5$	$1 + 5 = 6$	$3 + 3 = 6$	$5 + 5 = 10$
$0 + 6 = 6$	$1 + 6 = 7$	$3 + 4 = 7$	$5 + 6 = 11$
	$2 + 2 = 4$	$3 + 5 = 8$	$6 + 6 = 12$

Key
Even totals
Odd totals

Number of even totals = 15
Number of odd totals = 12
Number of dominoes = 27

Fraction of even totals = 15/27 = 5/9
Fraction of odd totals = 12/27 = 4/9

Ratio of even totals to odd totals =
15:12 = 5:4

Look at a set of dominoes with the doubles removed, that is:

What if you find the difference between the number of dots on each side? 6 − 3 = 3
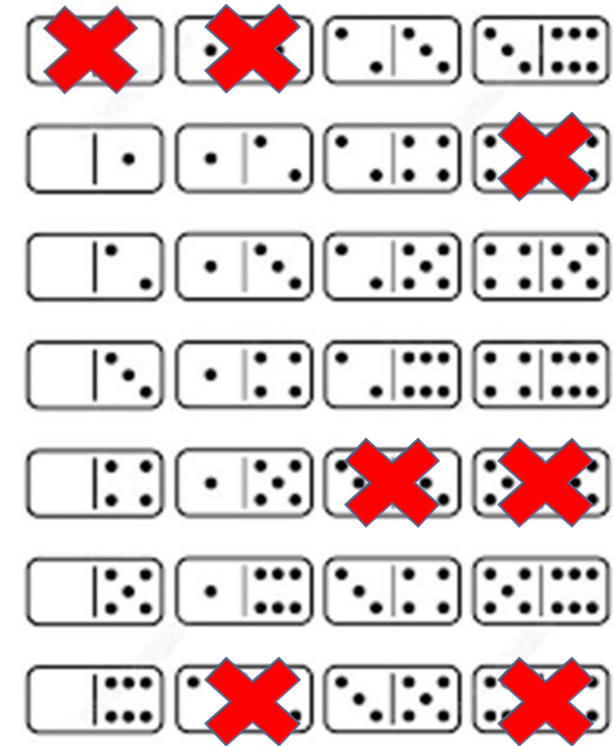
What fraction of the dominoes have differences that are an even number?

What fraction of the dominoes have differences that are an odd number?

What is the ratio of even differences to odd differences?

$1 - 0 = 1$
$2 - 0 = 2$
$3 - 0 = 3$
$4 - 0 = 4$
$5 - 0 = 5$
$6 - 0 = 6$
$2 - 1 = 1$
$3 - 1 = 2$
$4 - 1 = 3$
$5 - 1 = 4$
$6 - 1 = 5$
$3 - 2 = 1$
$4 - 2 = 2$
$5 - 2 = 3$
$6 - 2 = 4$
$4 - 3 = 1$
$5 - 3 = 2$
$6 - 3 = 3$
$5 - 4 = 1$
$6 - 4 = 2$
$6 - 5 = 1$

Key
Even differences
Odd differences

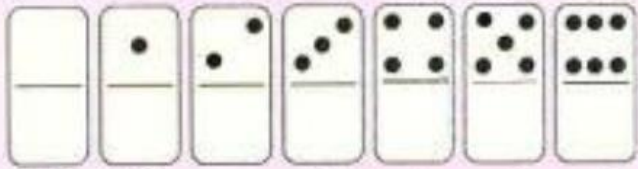Number of even differences = 9
Number of odd differences = 12
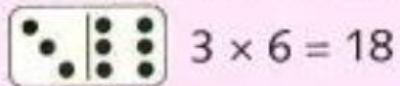Number of dominoes = 21

Fraction of even differences = 9/21 = 3/7
Fraction of odd differences = 12/21 = 4/7
Ratio of even differences to odd differences =
9:12 = 3:4

Look at a set of dominoes with the dominoes with a blank removed, that is:

What if you multiply together the number of dots on each side?

 3 × 6 = 18

What fraction of the dominoes have products that are an even number?

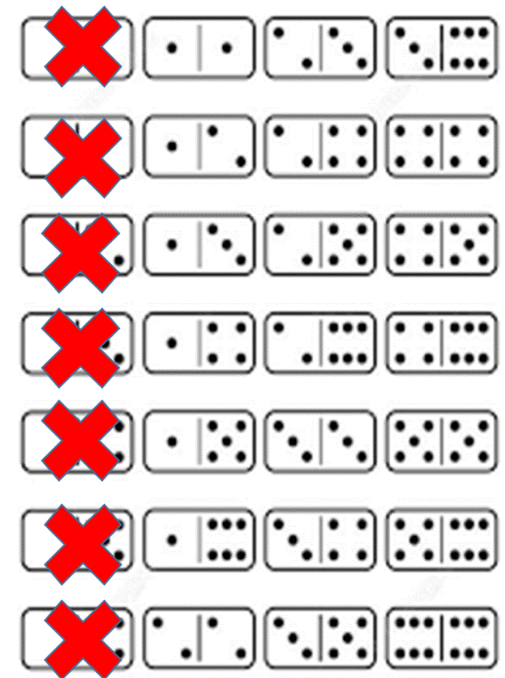What fraction of the dominoes have products that are an odd number?

What is the ratio of even products to odd products?

1 x 1 = 1
1 x 2 = 2
1 x 3 = 3
1 x 4 = 4
1 x 5 = 5
1 x 6 = 6
2 x 2 = 4
2 x 3 = 6
2 x 4 = 8
2 x 5 = 10
2 x 6 = 12
3 x 3 = 9
3 x 4 = 12
3 x 5 = 15
3 x 6 = 18
4 x 4 = 16
4 x 5 = 20
4 x 6 = 24
5 x 5 = 25
5 x 6 = 30
6 x 6 = 36

Key
Even products
Odd products

Number of even products = 15
Number of odd products = 6
Number of dominoes = 21

Fraction of even products = 15/21 = 5/7
Fraction of odd products = 6/21 = 2/7
Ratio of even products to odd products = 15:6 = 5:2