Warm-up

A. Complete the chart to show all possible outcomes for finding the sum of 2 dice.

add

	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

Warm-up

Sum of two dice:

	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

B. Two number cubes are tossed. What is the probability that the sum of the numbers shown is less than 5?

$$P(\text{sum} < 5) = \frac{\text{desired outcome } 6}{\text{total outcomes } 36}$$

$$= \boxed{\frac{1}{6}}$$

✓ check off answer on worksheet

Warm-up

C. Two number cubes are tossed. What is the probability that the sum of the numbers shown is less than 5 *given* that exactly one cube shows a one?

Sum of two dice:

	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

$$P(\text{sum} < 5 \mid \text{one } 1) = \frac{4}{10} = \frac{2}{5}$$

given

count "reduced" sample space

numerator (focus only on the reduced sample space)

denominator

✓

Warm-up

Sum of two dice:

	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

D. Two number cubes are tossed. What is the probability that exactly one cube shows a one *given* that the sum of the numbers shown is less than 5?

reduced sample space

$$P(\text{one 1} \mid \text{sum} < 5) = \frac{\text{desired outcome } 4}{6} = \boxed{\frac{2}{3}}$$

given