ALBERT

Name _____ Date _____

Addition Rule Worksheet

Geometry · Common Core HSS-CP.B.7

> Apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model.

Practice

Builds the skill step by step.

1. P(A) = 0.4, P(B) = 0.3 and P(A and B) = 0.1. What is P(A or B)?

2. A card is drawn from a standard 52-card deck. What is P(heart or king)?

3. A number cube is rolled. What is P(even or greater than 4)?

4. A and B are mutually exclusive, P(A) = 0.2 and P(B) = 0.5. What is P(A or B)?

5. Why does the Addition Rule subtract P(A and B)?

   A. Outcomes in both A and B are counted twice in P(A) + P(B).

   B. To make the answer smaller than 1.

   C. Because A and B are independent.

   D. Because A and B can't happen together.

6. A card is drawn from a standard 52-card deck. What is P(red or ace)?

7. A number cube is rolled. What is P(1 or 6)?

8. P(A or B) = 0.8, P(A) = 0.5 and P(B) = 0.4. What is P(A and B)?

9. A spinner shows 1 to 10. What is P(even or multiple of 5)?

10. In a class of 30, 12 play soccer, 8 play basketball and 3 play both. What is P(soccer or basketball)?

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On Level

Grade-level practice.

1. Two number cubes are rolled. What is P(doubles or sum is 7)?

2. Two number cubes are rolled. What is P(sum is 8 or doubles)?

3. The table shows 250 students' favorite subjects by grade. What is P(Grade 11 or prefers science)?

	Math	Science	English	Total
Grade 10	40	30	30	100
Grade 11	50	60	40	150
Total	90	90	70	250

4. A card is drawn from a standard 52-card deck. What is P(face card or spade)?

5. P(A or B) = 0.9, P(A) = 0.6 and P(A and B) = 0.3. What is P(B)?

6. At a school, P(band) = 0.3, P(sports) = 0.5 and P(both) = 0.1. Find P(band or sports) and explain what it means.

7. A and B are independent, P(A) = 0.5 and P(B) = 0.4. What is P(A or B)?

8. P(A) = 0.5, P(B) = 0.3 and P(A and B) = 0.1. What is P(neither A nor B)?

9. If A and B are mutually exclusive, what is P(A and B)?

   A. 0

   B. 1

   C. P(A) × P(B)

   D. P(A) + P(B)

10. A number cube is rolled. What is P(prime or even)?

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Challenge

Multi-step and word problems that stretch it.

1. A whole number from 1 to 30 is chosen. What is P(multiple of 3 or multiple of 5)?

2. P(A) = 0.45, P(B) = 0.35 and P(A or B) = 0.65. What is P(A and B)?

3. Two number cubes are rolled. What is P(at least one 6 or sum is at least 10)?

4. A card is drawn from a standard 52-card deck. What is P(not (heart or face card))?

5. A whole number from 1 to 100 is chosen. What is P(divisible by 4 or by 6)?

6. Can events with P(A) = 0.7 and P(B) = 0.6 be mutually exclusive?

   A. No: P(A or B) would be 1.3, more than 1.

   B. Yes: any two events can be.

   C. Yes: because 0.7 > 0.6.

   D. You can't tell.

7. 60% of people watch show X, 50% watch show Y and 20% watch neither. What is P(watches both)?

8. P(A) = 0.3 and P(B) = 0.4. What is the largest possible value of P(A or B)?

9. P(A) = 0.3 and P(B) = 0.4. What is the smallest possible value of P(A or B)?

10. Explain why P(A or B) can never be more than P(A) + P(B).