




13.4 EXERCISES

HOMEWORK KEY

-  = **WORKED-OUT SOLUTIONS**
on p. WS1 for Exs. 5 and 23
-  = **TAKS PRACTICE AND REASONING**
Exs. 8, 13, 24, and 28
-  = **MULTIPLE REPRESENTATIONS**
Ex. 25

SKILL PRACTICE

1. **VOCABULARY** Copy and complete: The probability of ? events is found using the formula $P(A \text{ and } B) = P(A) \cdot P(B \text{ given } A)$.

2. **WRITING** Explain how overlapping events differ from mutually exclusive events.

EXAMPLES

1 and 2

on pp. 861–862
for Exs. 3–8

PROBABILITY OF A OR B In Exercises 3–6, you roll a number cube. Tell whether the events A and B are *mutually exclusive* or *overlapping*. Then find $P(A \text{ or } B)$.

3. **Event A:** Roll a 6.

Event B: Roll a prime number.

4. **Event A:** Roll an even number.

Event B: Roll a 5.

5. **Event A:** Roll an odd number.

Event B: Roll a number less than 5.

6. **Event A:** Roll a multiple of 3.

Event B: Roll an even number.

7. **ERROR ANALYSIS** A bag contains 7 yellow marbles, 4 red marbles, and 5 blue marbles. Describe and correct the error in finding the probability that you randomly draw a yellow or blue marble.

$$P(\text{yellow or blue}) = P(\text{yellow}) \cdot P(\text{blue})$$

$$= \frac{7}{16} \cdot \frac{5}{16} = \frac{35}{256}$$

8. **TAKS REASONING** A bag contains tiles with the numbers 1–10 on them. You randomly choose a tile from the bag. What is the probability that you choose an even number or a number less than 5?

(A) 0.7

(B) 0.8

(C) 0.9

(D) 1

EXAMPLES

3 and 4

on p. 863
for Exs. 9–12

PROBABILITY OF A AND B In Exercises 9–12, tell whether the events A and B are *dependent* or *independent*. Then find $P(A \text{ and } B)$.

9. You roll two number cubes.

Event A: You roll a 2 first.

Event B: You roll a 5 second.

10. You write each of the letters of the word BIOLOGY on pieces of paper and place them in a bag. You randomly draw one letter, do not replace it, then randomly draw a second letter.

Event A: The first letter is O.

Event B: The second letter is B.

11. You flip a coin and roll a number cube.

Event A: The coin shows heads.

Event B: The number cube shows 2.

12. A box contains 3 milk chocolates, 3 white chocolates, and 4 dark chocolates. You choose a chocolate at random, eat it, then choose a second chocolate at random.

Event A: You choose a dark chocolate.

Event B: You choose a dark chocolate.