10.4 HW Independent and Dependent Probability (ODD NUMBERS ONLY) Name: Key

1. **Vocabulary** Two events are ? if the occurrence of one event does not affect the probability of the other event. (*independent* or *dependent*)

Find each probability.

2. rolling a 1 and then another 1 when a number cube is rolled twice
3. a coin landing heads up on every toss when it is tossed 3 times $\frac{1}{8}$

Two number cubes are rolled—one blue and one yellow. Explain why the events are dependent. Then find the indicated probability.

4. The blue cube shows a 4 and the product is less than 20.
5. The yellow cube shows a multiple of 3, given that the product is 6. $\frac{1}{2}$

The table shows the results of a quality-control study of a lightbulb factory. A lightbulb from the factory is selected at random. Find each probability.

Lightbulb Quality		
	Shipped	Not Shipped
Defective	10	45
Not Defective	942	3

6. that a shipped bulb is not defective
7. that a bulb is defective and shipped $\frac{1}{100}$

A bag contains 20 checkers—10 red and 10 black. Determine whether the events are independent or dependent. Find the indicated probability.

8. selecting 2 black checkers when they are chosen at random with replacement
9. selecting 2 black checkers when they are chosen at random without replacement

dependent; $\frac{9}{38}$

PRACTICE AND PROBLEM SOLVING

Find each probability.

10. choosing the same activity when two friends each randomly choose 1 of 4 extracurricular activities to participate in
11. rolling an even number and then rolling a 6 when a number cube is rolled twice $\frac{1}{12}$

Two number cubes are rolled—one blue and one yellow. Explain why the events are dependent. Then find the indicated probability.

12. The yellow cube is greater than 5 and the product is greater than 24.
13. The blue cube is less than 3 and the product is 8. $\frac{1}{36}$

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Employment Find each probability.

15. that a person with an advanced degree is employed ≈.72
16. that a person is not a high school graduate and is not employed

Employment by Education Level, Ages 21–24		
Education Level	Employed (millions)	Not employed (millions)
Not a high school graduate	1.060	0.834
High school graduate	2.793	1.157
Some college	4.172	1.634
Bachelor's degree	1.53	0.372
Advanced degree	0.104	0.041

A bag contains number slips numbered 1 to 9. Determine whether the events are independent or dependent, and find the indicated probability.

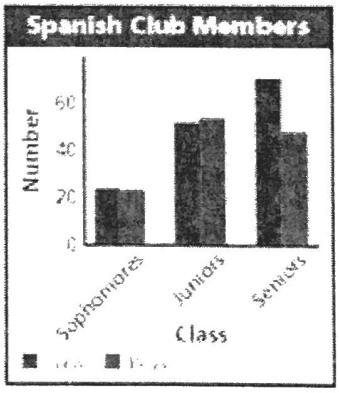
17. selecting 2 even numbers when 2 slips are chosen without replacement dep; $\frac{1}{6}$
18. selecting 2 even numbers when 2 slips are chosen with replacement

Determine whether the events are independent or dependent.

19. A coin comes up heads, and a number cube rolled at the same time comes up 6. I
20. A 4 is drawn from a deck of cards, set aside, and then an ace is drawn.
21. A 1 is rolled on a number cube, and then a 4 is rolled on the same number cube. I
22. A dart hits the bull's-eye, and a second dart also hits the bull's eye.

23. **Tennis** In the 2004 Wimbledon Men's Tennis Championship final, Roger Federer defeated Andy Roddick in three sets.
    a. What was the probability that Federer won the point when his second serve was in? ≈.61
    b. When Federer lost a point, what was the probability that he *double faulted*? ≈.05

Roger Federer's Service Points		
	Won	Lost
First Serve In	64	31
Second Serve In	34	22
Second Serve Out (Double Fault)	0	3



Estimation Use the graph to estimate each probability.

26. that a Spanish club member is a girl
27. that a senior Spanish club member is a girl ≈.6
28. that a male Spanish club member is a senior