

SAT Probability Worksheet

Name: _____ Date: _____

Circle one answer for each question. Use the blank space for calculations. A calculator is allowed.

1. A bag contains 3 red, 5 blue, and 2 green marbles. One marble is selected at random. What is the probability it is blue?

A. $\frac{1}{5}$

B. $\frac{3}{10}$

C. $\frac{1}{2}$

D. $\frac{4}{5}$

2. A fair six-sided die is rolled once. What is the probability of a number greater than 4?

A. $\frac{1}{6}$

B. $\frac{1}{3}$

C. $\frac{1}{2}$

D. $\frac{2}{3}$

3. Of 40 students, 18 play an instrument. If one student is chosen at random, what is the probability the student does not play an instrument?

A. $\frac{9}{20}$

B. $\frac{1}{2}$

C. $\frac{11}{20}$

D. $\frac{3}{5}$

4. A fair coin is tossed twice. What is the probability of two heads?

A. $\frac{1}{4}$

B. $\frac{1}{3}$

C. $\frac{1}{2}$

D. $\frac{3}{4}$

5.

Grade	Bus	Other travel
Senior	12	8
Junior	18	22

The table shows how the students in a club travel to school. One student is chosen at random from those who ride the bus. What is the probability that the student is a senior?

- A. $\frac{1}{5}$
- B. $\frac{1}{3}$
- C. $\frac{2}{5}$
- D. $\frac{3}{5}$

6.

Group	In band	Not in band
Plays sport	8	12
No sport	6	14

The table shows whether each student in a class plays a sport and whether the student is in the band. If one student from the class is selected at random, what is the probability that the student both plays a sport and is in the band?

- A. $\frac{1}{10}$
- B. $\frac{1}{5}$
- C. $\frac{1}{4}$
- D. $\frac{2}{5}$

7. Events A and B are independent, with probabilities 0.4 and 0.3. What is the probability that both occur?

- A. 0.1
- B. 0.12
- C. 0.7
- D. 0.9

8. A box contains 4 black and 6 white tiles. Two tiles are selected at random without replacement. What is the probability both are black?

- A. $\frac{2}{15}$
- B. $\frac{4}{25}$
- C. $\frac{1}{5}$
- D. $\frac{2}{5}$

9. A fair die is rolled once. What is the probability of an even number or a 5?

A. $\frac{1}{3}$

B. $\frac{1}{2}$

C. $\frac{2}{3}$

D. $\frac{5}{6}$

10. A random sample of 200 parts contains 6 defective parts. Using the sample proportion, about how many defective parts would be expected in 3,000 parts?

A. 30

B. 60

C. 90

D. 180

11. An event has probability 0.72. What is the probability that it does not occur?

- A. 0.18
- B. 0.28
- C. 0.36
- D. 0.72

12. A card is selected at random from 15 cards numbered 1 through 15. Given that its number is a multiple of 3, what is the probability that it is even?

- A. $\frac{2}{15}$
- B. $\frac{1}{3}$
- C. $\frac{2}{5}$
- D. $\frac{7}{15}$

Answer key

1 C · 2 B · 3 C · 4 A · 5 C · 6 B · 7 B · 8 A · 9 C · 10 C · 11 B · 12 C

1. C: $\frac{1}{2}$

There are 10 equally likely marbles, of which 5 are blue. The probability is $\frac{5}{10} = \frac{1}{2}$.

2. B: $\frac{1}{3}$

The favorable results are 5 and 6, two of the six equally likely outcomes. Thus the probability is $\frac{2}{6} = \frac{1}{3}$.

3. C: $\frac{11}{20}$

There are $40 - 18 = 22$ students who do not play. The probability is $\frac{22}{40} = \frac{11}{20}$.

4. A: $\frac{1}{4}$

The tosses are independent, so multiply $\frac{1}{2}$ by $\frac{1}{2}$. Equivalently, HH is one of four equally likely ordered outcomes.

5. C: $\frac{2}{5}$

Restrict attention to bus riders: 12 seniors and 18 juniors, for 30 total. The probability is $\frac{12}{30} = \frac{2}{5}$. Choice B, $\frac{20}{60}$, ignores the condition, and choice D, $\frac{12}{20}$, divides by the seniors instead of the bus riders.

6. B: $\frac{1}{5}$

The intersection contains 8 students. The overall total is $8 + 12 + 6 + 14 = 40$, giving $\frac{8}{40} = \frac{1}{5}$.

7. B: 0.12

Independence allows multiplication: $P(A \text{ and } B) = 0.4(0.3) = 0.12$.

8. A: $\frac{2}{15}$

The first-black probability is $\frac{4}{10}$. After a black tile is removed, the second-black probability is $\frac{3}{9}$. Their product is $\frac{12}{90} = \frac{2}{15}$.

9. C: $\frac{2}{3}$

The favorable outcomes are 2, 4, 5, and 6: four out of six equally likely outcomes. The probability is $\frac{4}{6} = \frac{2}{3}$.

10. C: 90

The observed defect proportion is $\frac{6}{200} = 0.03$. Applying it to 3000 gives an estimate of 90 defective parts, not a guaranteed count.

11. B: 0.28

An event and its complement have probabilities summing to 1. Subtract 0.72 from 1 to get 0.28.

12. C: $\frac{2}{5}$

The condition restricts the possibilities to 3, 6, 9, 12, and 15. Two of these five values, 6 and 12, are even, giving $\frac{2}{5}$.