

Probability & Conditional Probability

Foundation to Challenge

Practice should make the test feel easier, not merely familiar.

Work without the answer key first. When you finish, use the QR code on the final page to check your answers online.

FOUNDATION

- 1** A bag contains 5 red tokens, 7 blue tokens, and 8 yellow tokens. One token is selected at random. What is the probability that it is blue?

 - A. $\frac{1}{4}$
 - B. $\frac{7}{20}$
 - C. $\frac{2}{5}$
 - D. $\frac{7}{15}$
- 2** A fair six-sided number cube is rolled once. What is the probability of rolling a multiple of 3?

 - A. $\frac{1}{6}$
 - B. $\frac{1}{3}$
 - C. $\frac{1}{2}$
 - D. $\frac{2}{3}$
- 3** A spinner has 10 equal sectors, 4 of which are marked with a star. What is the probability of landing on a star? Enter your answer as a fraction or decimal.

- 4 The probability that a train is delayed is 0.18. What is the probability that the train is not delayed?

STANDARD

- 5 The table summarizes results for 100 students. If one student is selected at random, what is the probability that the student used video lessons and passed?

	Passed	Did not pass	Total
Video lessons	36	12	48
Text lessons	24	28	52
Total	60	40	100

- A. $\frac{6}{25}$
 B. $\frac{9}{25}$
 C. $\frac{3}{5}$
 D. $\frac{4}{5}$

- 6 Using the same table, if a student who passed is selected at random, what is the probability that the student used video lessons?

	Passed	Did not pass	Total
Video lessons	36	12	48
Text lessons	24	28	52
Total	60	40	100

- A. $\frac{9}{25}$
 B. $\frac{12}{25}$
 C. $\frac{3}{5}$
 D. $\frac{4}{5}$

- 7 A fair coin is flipped and a fair six-sided number cube is rolled. What is the probability of getting heads and a number greater than 4?

A. $1/12$
B. $1/6$
C. $1/4$
D. $1/3$

- 8 A bag contains 6 green marbles and 4 orange marbles. Two marbles are selected at random without replacement. What is the probability that both are orange?

A. $1/10$
B. $2/15$
C. $1/5$
D. $4/15$

- 9 At a conference, 28% of attendees are assigned to Group X and 37% to Group Y. All remaining attendees are assigned to Group Z. If there are 600 attendees, how many are in Group Z?

10

The table summarizes club choices for 80 students. If a Grade 10 student is selected at random, what is the probability that the student is in the sports club?

	Art club	Sports club	Neither	Total
Grade 9	18	12	10	40
Grade 10	15	20	5	40
Total	33	32	15	80

A. $\frac{3}{8}$

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

C. $\frac{5}{8}$

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

ADVANCED

11

A box contains 12 red, 9 blue, and 9 gold marbles. Five red marbles, 3 blue marbles, and 1 gold marble are striped. If a striped marble is selected at random, what is the probability that it is red?

A. $\frac{4}{9}$

B. $\frac{5}{9}$

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

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

12

For premium subscriptions in the table, the probability that a randomly selected subscription is annual is $\frac{3}{5}$. What is the value of x ?

	Annual plan	Monthly plan	Total
Premium	42	x	
Basic	25	35	60

- 13** A triangular display with base 8 meters and height 6 meters lies inside a rectangular plaza measuring 12 meters by 10 meters. A point in the plaza is selected at random. What is the probability that the point lies inside the triangular display?

A. $\frac{1}{6}$
B. $\frac{1}{5}$
C. $\frac{1}{4}$
D. $\frac{2}{5}$

- 14** In a survey, 60% of commuters use the bus. Among bus users, 25% leave home before 7 a.m. What percent of all commuters both use the bus and leave before 7 a.m.?

- 15** Events A and B are independent. If the probability of A is 0.35 and the probability of B is 0.60, what is the probability that both events occur?

A. 0.21
B. 0.35
C. 0.39
D. 0.95

16

Among attendees who chose Session P in the table, the probability that an attendee is experienced is $\frac{2}{5}$. What is the value of x ?

	Session P	Session Q	Total
Novice	18	12	30
Experienced	x	20	

17

Sixty-five percent of purchases are made online and 35% are made in a store. Eight percent of online purchases are returned, while 4% of store purchases are returned. If a returned purchase is selected at random, what is the probability that it was made online?

A. $\frac{13}{25}$
B. $\frac{26}{33}$
C. $\frac{4}{5}$
D. $\frac{13}{16}$

18

A class has 16 girls and 12 boys. Twelve girls and 6 boys passed a test. Let w be the probability that a selected student is a girl given that the student passed, and let z be the probability that a selected student passed given that the student is a boy. What is the positive difference between w and z ? Enter your answer as a fraction or decimal.

Check your answers online.

The public practice PDF contains questions only. The answer check lives on the website so you can review your score, identify the kind of mistake you made, and move to the next resource.



ANSWER CHECK

Probability

Scan the QR code or visit:

<https://aryalanupme.github.io/sat-probability.html>

If you are stuck on one question, note the question number and the approach you tried before checking another solution.

Independent resource

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