



Use probability distributions to make decisions

1What is $P(X = 1)$?Find $P(X = 1)$ from the table.

X	$P(X)$
0	0.20
1	0.40
2	0.10
3	0.30

A 0.40

B 0.20

C 0.60

D 0.10

2

Find the probability.

Find $P(X < 2)$ from the table.

X	$P(X)$
0	0.40
1	0.10
2	0.20
3	0.10
4	0.20

A 0.40

B 0.70

C 0.60

D 0.50

3

Find the probability.

Find $P(1 \leq X < 2)$ from the table.

X	$P(X)$
1	0.20
2	0.30
3	0.20
4	0.10
5	0.10
6	0.10

A 0.30

B 0.20

C 0.80

D 0.50

4

What is the missing probability?

The probabilities must add to 1. Find the missing value.

X	$P(X)$
0	0.10
1	0.40
2	0.40
3	?

A 0.90

B 0.10

C 0.20

D 0.05

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Is this a valid probability table?

A valid table has probabilities from 0 to 1 that add to 1.

X	$P(X)$
3	0.10
4	0.10
5	0.10
6	0.70

A Yes, it is a valid probability table

B No, it is not a valid probability table

6What is the expected value $E(X)$?Find the expected value $E(X)$.

X	$P(X)$
2	0.10
3	0.70
4	0.20

A 3.1

B 3

C 9

D 4.1

7Which expression correctly calculates the expected value $E(X)$?

How would you calculate the expected value?

X	$P(X)$
3	0.30
4	0.40
5	0.30

A $3(0.30) + 4(0.40) + 5(0.30)$ B $3 + 0.30 + 4 + 0.40 + 5 + 0.30$ C $3(1.30) + 4(1.40) + 5(1.30)$ D $0.30 + 0.40 + 0.30$



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What ticket price would make this a fair game?

A fair ticket price equals the expected prize. Find it.

Prize	$P(X)$
\$0	0.60
\$5	0.20
\$10	0.20

- A \$3 B \$2.5 C \$10 D \$0

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Is this a fair game?

A ticket costs \$12.5. A game is fair when the ticket price equals the expected prize.

Prize	$P(X)$
\$5	0.50
\$15	0.40
\$20	0.10

- A No, the game is not fair B Yes, the game is fair

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What ticket price would make this a fair game?

A fair ticket price equals the expected prize. Find it.

Prize	$P(X)$
\$5	0.60
\$20	0.20
\$25	0.20

- A \$25 B \$11.5 C \$5 D \$12

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Is this a fair game?

A ticket costs \$8. A game is fair when the ticket price equals the expected prize.

Prize	$P(X)$
\$0	0.20
\$5	0.60
\$15	0.20

- A No, the game is not fair B Yes, the game is fair

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What ticket price would make this a fair game?

A fair ticket price equals the expected prize. Find it.

Prize	$P(X)$
\$0	0.20
\$20	0.50
\$25	0.30

- A \$0 B \$17.5 C \$17 D \$25