

Calculate expected value

1What is $P(X = 4)$?Find $P(X = 4)$ from the table.

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

A 0.20

B 0.90

C 0.30

D 0.10

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Is this a valid probability table?

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

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

A No, it is not a valid probability table

B Yes, it is a valid probability table

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What is the missing probability?

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

X	$P(X)$
3	?
4	0.20
5	0.25
6	0.15

A 0.60

B 0.40

C 0.35

D 0.45

4

What ticket price would make this a fair game?

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

Prize	$P(X)$
\$5	0.10
\$10	0.30
\$20	0.60

A \$5

B \$15

C \$20

D \$15.5

5Which expression correctly calculates the expected value $E(X)$?

How would you calculate the expected value?

X	$P(X)$
1	0.20
2	0.60
3	0.20

A $1(0.20) + 2(0.60) + 3(0.20)$ B $1(1.20) + 2(1.60) + 3(1.20)$ C $1 + 0.20 + 2 + 0.60 + 3 + 0.20$ D $0.20 + 0.60 + 0.20$ **6**What is the expected value $E(X)$?Find the expected value $E(X)$.

X	$P(X)$
0	0.30
1	0.60
2	0.10

A 1.8

B 3

C 1

D 0.8

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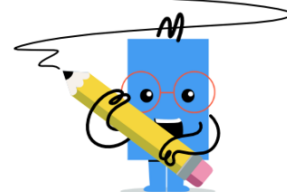
Is this a fair game?

A ticket costs \$18.5. A game is fair when the ticket price equals the expected value.

Prize	$P(X)$
\$0	0.10
\$5	0.20
\$25	0.70

A Yes, the game is fair

B No, the game is not fair



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What is the expected gain or loss per ticket?

A ticket costs \$6. Find the expected gain or loss.

Prize	$P(X)$
\$0	0.20
\$10	0.50
\$20	0.30

- A \$6 B \$11 C -\$5 D \$5

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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	0.30
\$10	0.40
\$15	0.30

- A \$9.5 B \$15 C \$5 D \$10

10Which expression correctly calculates the expected value $E(X)$?

How would you calculate the expected value?

X	$P(X)$
3	0.20
4	0.70
5	0.10

- A $3(0.20) + 4(0.70) + 5(0.10)$ B $3(1.20) + 4(1.70) + 5(1.10)$
C $3 + 0.20 + 4 + 0.70 + 5 + 0.10$ D $0.20 + 0.70 + 0.10$

11What 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 9 B 3 C 3.1 D 4.1

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Is this a fair game?

A ticket costs \$15.5. A game is fair when the ticket price equals the expected value.

Prize	$P(X)$
\$0	0.30
\$5	0.10
\$25	0.60

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