

a Find x

```

      50
     / \
    A 20 B x
   / \ / \
  C  D C  D
    
```

30

a branch from the total: subtract

b Find x

```

      50
     / \
    A 20 B 30
   / \ / \
  C 12 D x C  D
    
```

8

second branch: from its own branch

c Find x

```

      x
     / \
    A 20 B 30
   / \ / \
  C  D C  D
    
```

50

the total from its branches: add

d Find x

```

      50
     / \
    A x  B
   / \ / \
  C 12 D 8 C  D
    
```

20

a first branch from its two ends

e Find x

```

      50
     / \
    A    B 30
   / \ / \
  C 12 D x C  D
    
```

8

a branch needed first

f Find $P(A \text{ and } C)$

```

      50
     / \
    A 20 B 30
   / \ / \
  C 12 D 8 C 9  D 21
    
```

$\frac{12}{50} = \frac{6}{25}$

a probability out of the whole total

g Find $P(C)$

```

      50
     / \
    A 20 B 30
   / \ / \
  C 12 D 8 C 9  D 21
    
```

$\frac{21}{50}$

two ends that add

h Find x

	C	D	Total
A	8	x	20
B	6	4	10
Total	14	16	30

12

a cell from its row total

i Find x

	C	D	Total
A	8		20
B		x	
Total		16	30

4

a cell that needs another first

j Find $P(A \text{ and } C)$

	C	D	Total
A	8	12	20
B	6	4	10
Total	14	16	30

$\frac{8}{30} = \frac{4}{15}$

a probability from one cell

k Find $P(D)$

	C	D	Total
A	8	12	20
B	6	4	10
Total	14	16	30

$\frac{16}{30} = \frac{8}{15}$

a probability from a total

l Find $P(A \text{ or } C)$

	C	D	Total
A	8	12	20
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Total	14	16	30

$\frac{26}{30} = \frac{13}{15}$

A or C: count the overlap once

The Maths Habit

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```

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     / \
    A 20 B 30
   / \ / \
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the total from its branches: add

d Find x

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     / \
    A x  B
   / \ / \
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