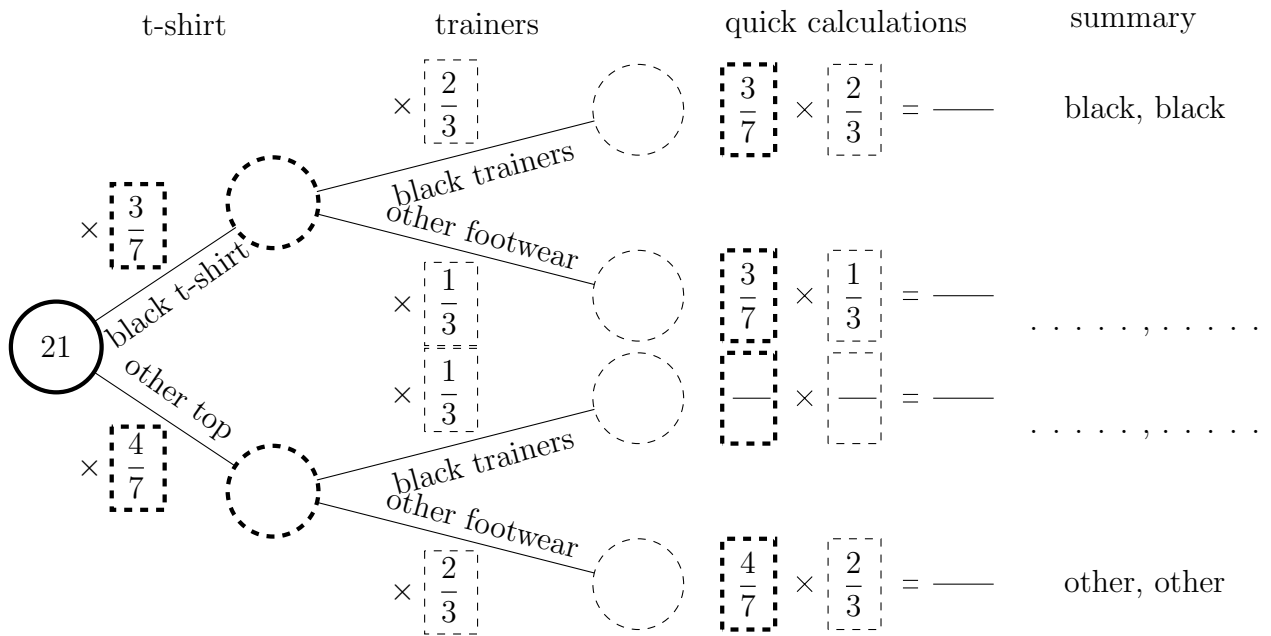1. The probability Inaya wears a black t-shirt is $\frac{4}{7}$

   When Inaya wears a black t-shirt the probability she wears black trainers is $\frac{2}{3}$
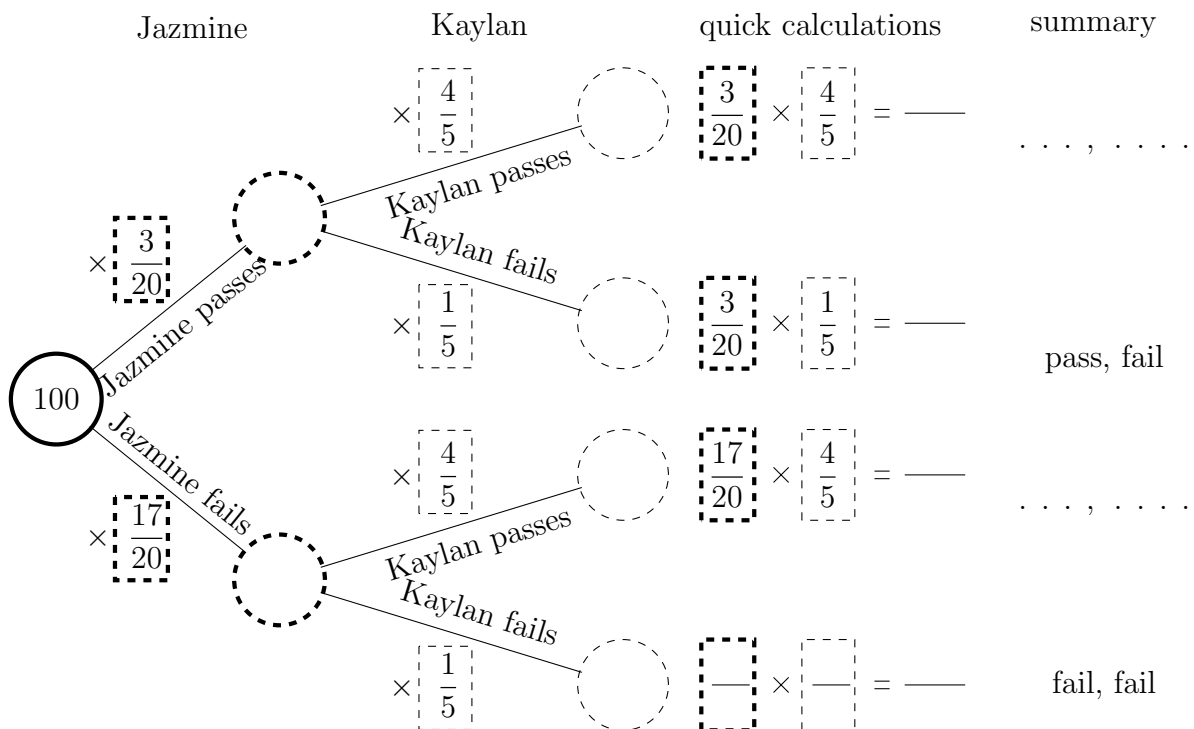
   When Inaya doesn't wear a black t-shirt the probability she wears black trainers is $\frac{1}{3}$

   a) Complete the tree, quick calculations and outcome summary.

t-shirt	trainers	quick calculations	summary
	$\times \frac{2}{3}$ black trainers	$\frac{3}{7} \times \frac{2}{3} = \text{——}$	black, black
$\times \frac{3}{7}$ black t-shirt	$\times \frac{1}{3}$ other footwear	$\frac{3}{7} \times \frac{1}{3} = \text{——}$	. . . . , ...
21	$\times \frac{1}{3}$ black trainers	$\text{——} \times \text{——} = \text{——}$	. . . . , ...
$\times \frac{4}{7}$ other top	$\times \frac{2}{3}$ other footwear	$\frac{4}{7} \times \frac{2}{3} = \text{——}$	other, other

   b) Work out the probability of Inaya wearing a black t-shirt without black trainers . . . .

2. a) Complete the tree, quick calculations and outcome summary.

Jazmine	Kaylan	quick calculations	summary
	$\times \frac{4}{5}$ Kaylan passes	$\frac{3}{20} \times \frac{4}{5} = \text{——}$	. . . , ...
$\times \frac{3}{20}$ Jazmine passes	$\times \frac{1}{5}$ Kaylan fails	$\frac{3}{20} \times \frac{1}{5} = \text{——}$	pass, fail
100	$\times \frac{4}{5}$ Kaylan passes	$\frac{17}{20} \times \frac{4}{5} = \text{——}$	. . . , ...
$\times \frac{17}{20}$ Jazmine fails	$\times \frac{1}{5}$ Kaylan fails	$\text{——} \times \text{——} = \text{——}$	fail, fail

   b) Work out the probability of both Jazmine and Kaylan failing the swimming test.
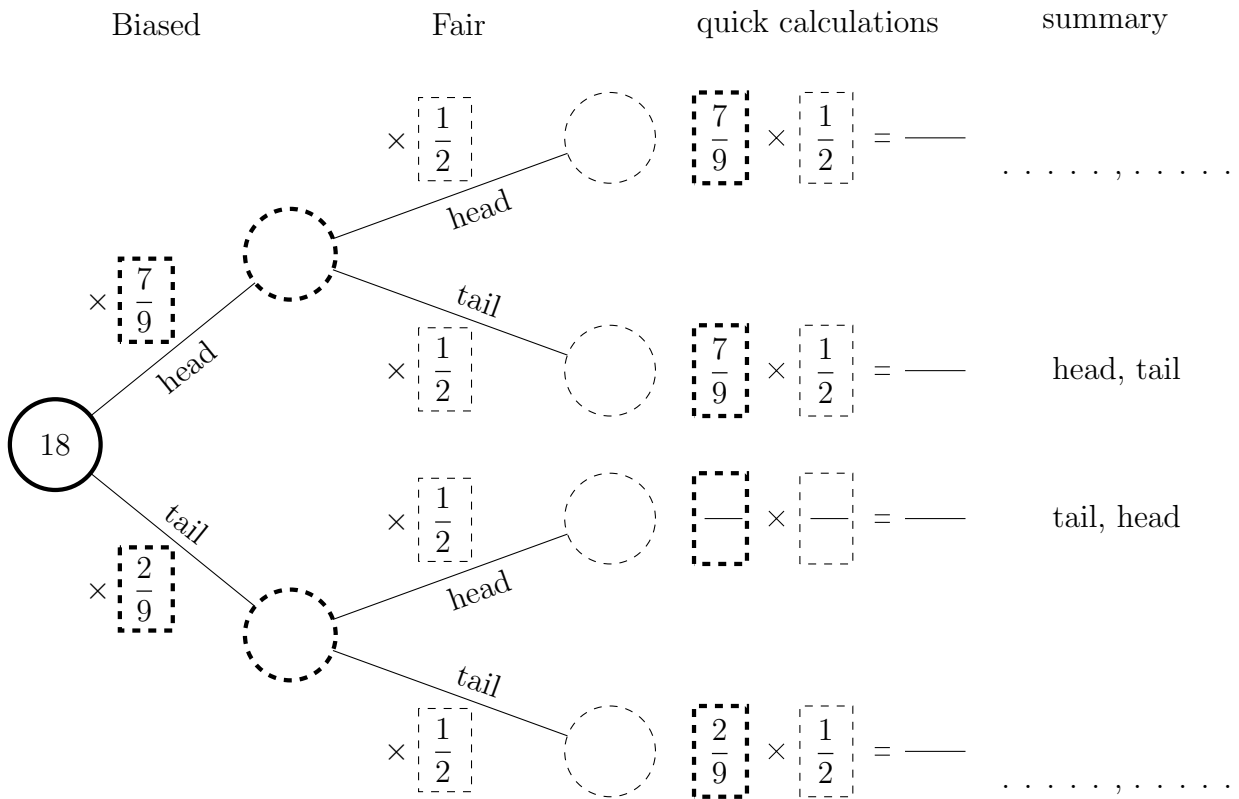
   . . . .

   Turn over for more questions and answers

3. Lara will throw a biased coin and a fair coin.

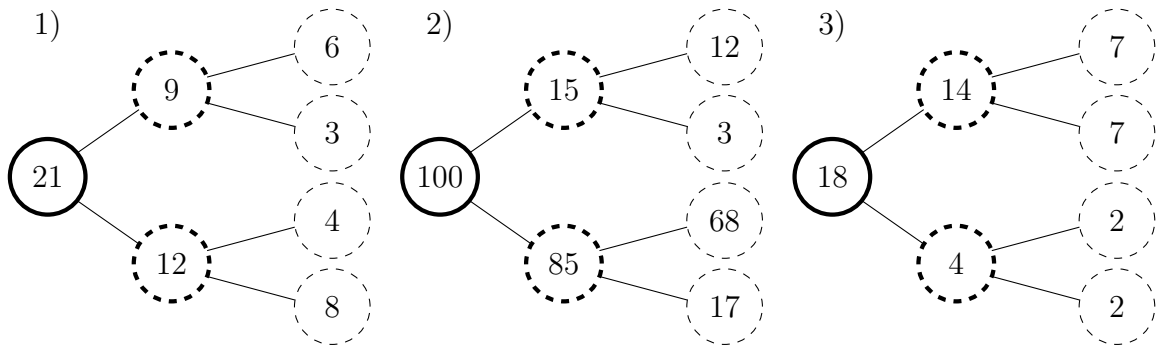The probability of getting a head with the biased coin is $\frac{7}{9}$

(a) Complete the tree, quick calculations and outcome summary.

| | Biased | Fair | quick calculations | summary |

$\times \boxed{\frac{1}{2}}$ $\boxed{\frac{7}{9}} \times \boxed{\frac{1}{2}} = ———$ . . . . . , ...

$\times \boxed{\frac{7}{9}}$ head

$\times \boxed{\frac{1}{2}}$ head $\boxed{\frac{7}{9}} \times \boxed{\frac{1}{2}} = ———$ head, tail

18   tail

$\times \boxed{\frac{2}{9}}$ $\times \boxed{\frac{1}{2}}$ head $\boxed{} \times \boxed{} = ———$ tail, head

tail

$\times \boxed{\frac{1}{2}}$ $\boxed{\frac{2}{9}} \times \boxed{\frac{1}{2}} = ———$ . . . . . , ...

(b) Work out the probability of Lara getting tails on both coins.   . . . .

Answers

1)

2)

3)

1) quick calc	summary	2) quick calc	summary	quick calc	summary
$= \frac{6}{21}$		$= \frac{12}{100}$		$= \frac{7}{18}$	head, head
$= \frac{3}{21}$	black, other	$= \frac{3}{100}$		$= \frac{2}{18}$	
$\frac{4}{7} \times \frac{1}{3} = \frac{4}{21}$		$= \frac{68}{100}$	fail, pass	$\frac{2}{9} \times \frac{1}{2} = \frac{2}{18}$	
$= \frac{8}{21}$	other, other	$\frac{17}{20} \times \frac{1}{5} = \frac{17}{100}$	fail, fail	$= \frac{2}{18}$	tail, tail

1b) $\frac{3}{21}$ or $\frac{1}{7}$ 2b) $\frac{17}{100}$ 3b) $\frac{2}{18}$ or $\frac{1}{9}$