

a) A bag only contains red marbles, blue marbles and yellow marbles.

- The probability of picking a red marble is $\frac{2}{5}$.
- There are nine yellow marbles.
- The probability of picking a blue marble is three times as likely as picking a yellow marble.

Work out the total number of marbles in the bag.

How many blue marbles are there?	There are 3 times as many blue marbles as there are yellow marbles. $3 \times 9 = 27$					
How many marbles are there which are not red?	The probability of picking a red marble is $\frac{2}{5}$. So the probability of picking a marble that is not red is $1 - \frac{2}{5} = \frac{3}{5}$. There are 9 yellow marbles, and 27 blue marbles, so there are 36 marbles which are not red. <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td></td><td></td><td>12</td><td>12</td><td>12</td></tr></table>			12	12	12
		12	12	12		
How many marbles are there altogether?	<table border="1" style="margin-left: auto; margin-right: auto;"><tr><td>12</td><td>12</td><td>12</td><td>12</td><td>12</td></tr></table> There are 60 marbles altogether.	12	12	12	12	12
12	12	12	12	12		

b) A bag only contains red marbles, blue marbles and yellow marbles.

- The probability of picking a red marble is $\frac{2}{7}$.
- There are eight yellow marbles.
- The probability of picking a blue marble is four times as likely as picking a yellow marble.

Work out the total number of marbles in the bag.

How many blue marbles are there?	There are 4 times as many blue marbles as there are yellow marbles. $4 \times 8 = 32$							
How many marbles are there which are not red?	The probability of picking a red marble is $\frac{2}{7}$. So the probability of picking a marble that is not red is $1 - \frac{2}{7} = \frac{5}{7}$. There are 8 yellow marbles, and 32 blue marbles, so there are 40 marbles which are not red. <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td></td><td></td><td>8</td><td>8</td><td>8</td><td>8</td><td>8</td></tr></table>			8	8	8	8	8
		8	8	8	8	8		
How many marbles are there altogether?								

c) A bag only contains red marbles, blue marbles and yellow marbles.

- The probability of picking a red marble is $\frac{1}{5}$.
- There are eight yellow marbles.
- The probability of picking a blue marble is four times as likely as picking a yellow marble.

Work out the total number of marbles in the bag.

How many blue marbles are there?	There are 4 times as many blue marbles as there are yellow marbles. $4 \times 8 = 32$
How many marbles are there which are not red?	
How many marbles are there altogether?	

d) A bag only contains red marbles, blue marbles and yellow marbles.

- The probability of picking a red marble is $\frac{5}{8}$.
- There are six yellow marbles.
- The probability of picking a blue marble is twice as likely as picking a yellow marble.

Work out the total number of marbles in the bag.