

Math at Work 12 - Work Package

1.2 - Probability and Odds

Missing

Mated

A handwritten signature in black ink, appearing to be 'Mated', is written over the printed text 'Missing' and 'Mated'.

Math at Work 12 - Work Package

Name: _____

1.2 - Probability and Odds

1. A bag holds 15 coloured marbles. Of the marbles, 9 are red, 5 are blue, and one is green. What are the odds of:

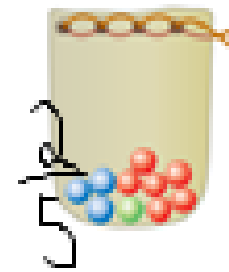
a) selecting the green marble

$$a) \frac{1}{15}$$

b) selecting a blue or a green marble

$$b) \frac{5}{15} \quad \frac{1}{15}$$

$$\frac{6}{15}$$



c) selecting a red marble?

d) not selecting a blue marble

$$\begin{array}{r} 9 - R \\ 5 - B \\ 1 - G \\ \hline 15 - T \end{array}$$

$$c) \frac{9}{15} \left(\frac{3}{5} \right) \quad d) \frac{10}{15} \left(\frac{2}{3} \right)$$

2. Express the probability in each of these statements in two other forms.

(a) There is a 10% chance of snow.

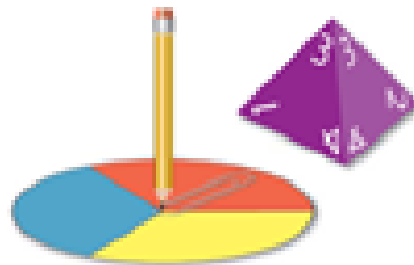
(b) Four out of five dentists recommend this toothbrush.

(c) Goalie Roberto Loungo's save percentage statistic was 0.927 at the 2010 Olympic Winter Games.

$$a) \frac{10}{100} = \frac{1}{10} \quad 0.1 \quad b) \frac{4}{5} \quad 0.8 \quad 80\%$$

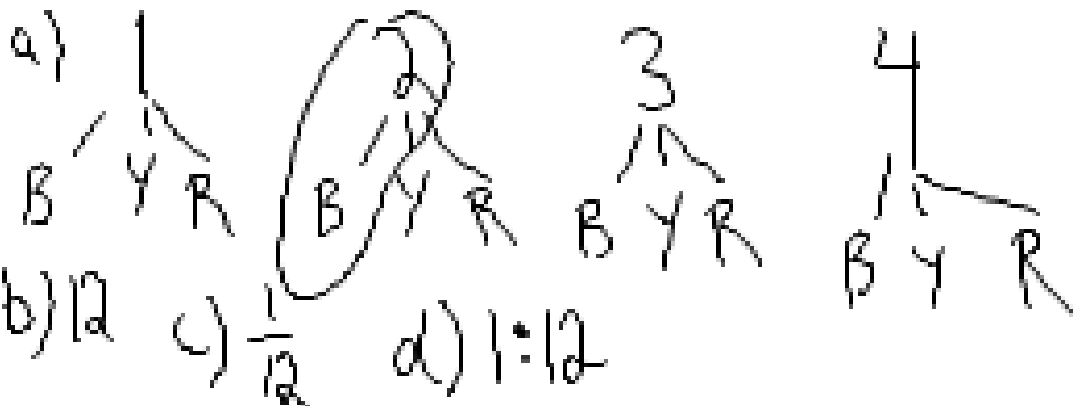
$$c) 92.7\% \quad \frac{92.7 \times 10}{100 \times 10} \quad \frac{927}{1000}$$

3. A board game involves rolling a four-sided die, and then spinning a spinner with three equal sectors, coloured red, yellow, and blue.



- a) Construct a tree diagram to display all of the outcomes.
 b) How many total outcomes are there?
 c) What is the probability of each outcome?
 d) What are the odds of each outcome?

$4 \times 3 = 12$
 $2 \times 2 \times 2 = 8$ $6 \times 6 = 36$



4. A department store offers scratch-and-win tickets to its customers. The contest rules say that 25% of the tickets are winning tickets.

- a) What are the odds of getting a winning ticket? Express the answer as a fraction.
 b) If the store prints 10 000 tickets, how many winning tickets are there?
 c) What is the probability of receiving a winning ticket?

a) $\frac{1}{4}$ b) $10000 \times 0.25 = 2500$
 c) 25%, $\frac{1}{4}$, 0.25

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5. A charity lottery claims that the chance of winning a prize is 1 in 5. You buy 5 tickets. Are you guaranteed to win? Explain why or why not.

