

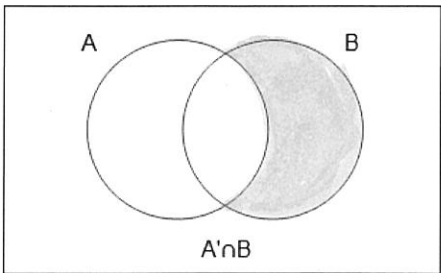
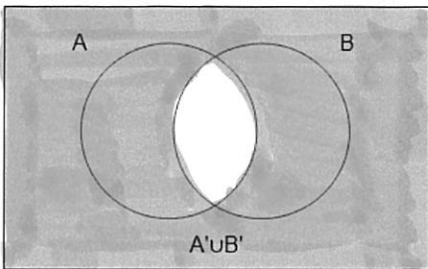
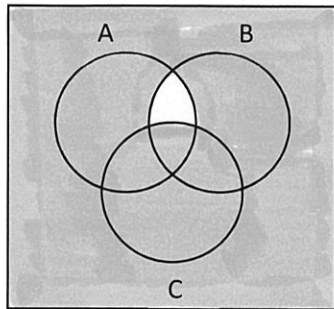


Year 11 Methods

Term 2 Week 4 Quiz

22

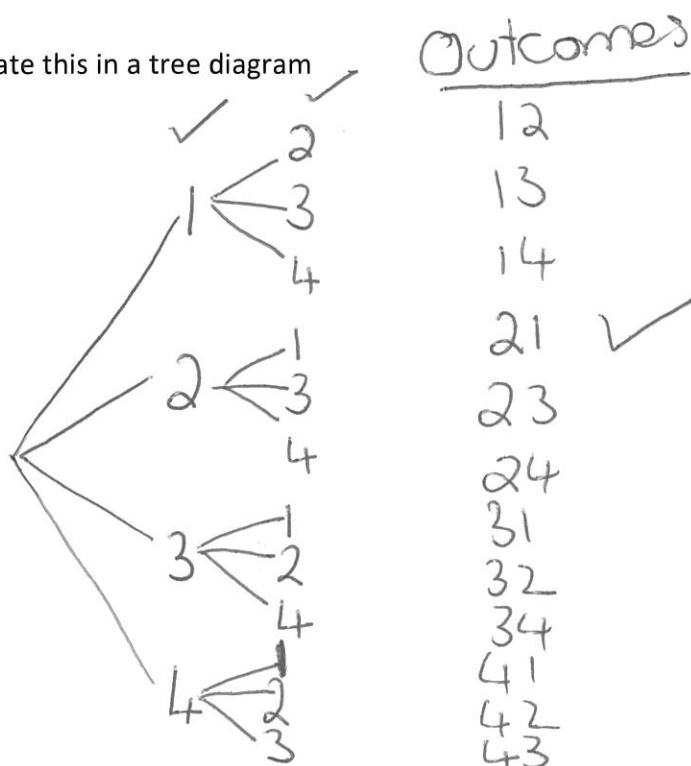
Name: Solutions

1.	Shade the region of the Venn Diagram indicated by the following sets.	4
	 $A' \cap B$ ✓  $A \cup B'$ ✓  $(A \cap B)' \cup C$ ✓✓	
2.	What is the part of a Venn Diagram where two circles overlap is called and what is the symbol? <u>Intersection</u> ✓ \cap ✓	2
3.	Find $n(A \cup B)$ if $n(A) = 10$, $n(B) = 8$, $n(A \cap B) = 4$ <u>14</u> ✓✓	2
4.	Let set A be defined as $A = \{x : x \text{ is a positive integer less than } 10\}$. a) State $n(A)$ <u>9</u> ✓ b) Explain whether the statement $0 \in A$ is true or false. <u>False because 0 is neither positive nor negative</u> ✓	2
5.	Find the exact value of: (a) $\sin \frac{\pi}{4}$ (b) $\cos \frac{5\pi}{6}$ (c) $\tan \frac{2\pi}{3}$ <u>$\frac{\sqrt{2}}{2}$</u> ✓ <u>$-\frac{\sqrt{3}}{2}$</u> ✓ <u>$-\sqrt{3}$</u> ✓	3

6. Let set $B = \{1, 2, 3, 4\}$. An integer is formed by choosing two digits, at random and without repetition, from B .

5

a) Illustrate this in a tree diagram



b) Determine the probability that the integer formed is a prime number.

$$P(\text{prime}) = \frac{5}{12} \checkmark$$

c) Determine the probability that the integer formed is even, given that it is a multiple of three.

$$P(\text{even} | \text{multiple}) = \frac{3}{4} \checkmark$$

7. The universal set is the set of integers from 1 to 20, A is the set of numbers divisible by 3, B is the set of square numbers and C is the set of prime numbers.

4

(a) Describe the set $A \cap B \cap C$

Empty Set ✓

$$A = \{3, 6, 9, 12, 15, 18\}$$

$$B = \{1, 4, 9, 16\}$$

(b) Determine $A \cup B$

$$A \cup B = \{1, 3, 4, 6, 9, 12, 15, 16, 18\} \checkmark$$

$$C = \{2, 3, 5, 7, 11, 13, 17, 19\}$$

(c) Determine $n(A \cup B \cup C)$

$$8, 10, 14, 20 = 4 \checkmark$$

(d) A number is selected at random from the universal set, determine $P(A|B)$

$$\frac{1}{4} \checkmark$$