

# YEAR 10 ADVANCED TOPIC TEST CHANCE

Name: \_\_\_\_\_

## *Instructions*

- Answer each question on the question paper in the spaces provided.
- Approved calculators may be used.
- Marks will not be awarded for poorly presented or untidy work.
- Show all necessary working. You may use working out paper.
- Time Allowed: *50 minutes*

1. 3 cards marked "A", "B" and "C" are placed in a hat. 2 cards are taken out, one at a time without replacement.

a) Draw a tree diagram to show the sample space of this experiment.

b) How many possible outcomes are there?

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c) If I select the cards at random, what is the chance of selecting an "A" and "B" in any order?

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2. A coin is tossed twice. What is the probability that I don't toss 2 tails?

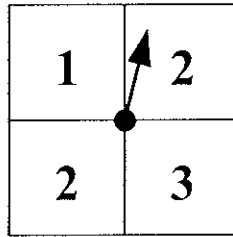
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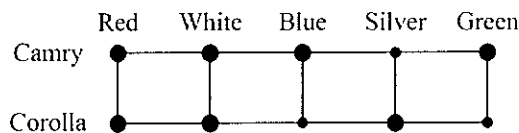
3.



The above spinner is spun twice. What is the probability of spinning:

- a) a total of 4? \_\_\_\_\_
- b) a double "2"? \_\_\_\_\_
- c) at least one "2"? \_\_\_\_\_
- d) a total of 7? \_\_\_\_\_

4. The following dot diagram shows the range of colours of two types of cars.



If I select a car at random, what is the probability that:

- a) it is a white Corolla? \_\_\_\_\_
- b) it is a Camry? \_\_\_\_\_
- c) it is not Red? \_\_\_\_\_

5. Some convicted criminals took a lie detector test about their innocence with the following results:

	Lie	Truth	Total
Guilty	80	12	92
Innocent	2	16	18
Total	82	28	110

- a) If one of these men were chosen at random, what is the probability that:
  - i) he is Guilty and Lying? \_\_\_\_\_
  - ii) he is Guilty? \_\_\_\_\_
  - iii) he is telling the Truth? \_\_\_\_\_
- b) What percentage of accuracy does the lie detector have? \_\_\_\_\_

6. The town of Swanton has a population of 137 and 2 soccer teams. 73 people barrack for Swanton United, 46 barrack for Swanton City and 12 people barrack for both.

a) Construct a Venn diagram based on this information.

b) If a person is selected from the town at random, what is the probability that they barrack:

i) just for Swanton United? \_\_\_\_\_

ii) just for Swanton City? \_\_\_\_\_

iii) for neither team? \_\_\_\_\_

7. Two boys, Jimmy and Sam, are playing with toy cars. Jimmy has 2 red cars and Sam has 2 green cars. They race the cars one-on-one. After each race, the losing car is eliminated. They keep playing until one of them has had both their cars eliminated. Naturally, the other boy wins.

a) Show all the possible outcomes using either a tree diagram or list.

b) What is the probability that:

i) Sam will win? \_\_\_\_\_

ii) a red car will win at least one race? \_\_\_\_\_

iii) a red car will win only one race? \_\_\_\_\_

iv) there will be 3 races? \_\_\_\_\_

8. James, Bryan, George and Frank are going for School Captain or Vice Captain. The Captain is chosen first, then the Vice Captain.

a) List all possible combinations.

b) What is the probability that George will be Captain and Frank the Vice Captain?

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c) What is the probability that George will be either Captain or Vice Captain? \_\_\_\_\_

9. I roll two dice and use the difference between the dice to move around a board game. What is the probability of rolling a difference of:

Space for diagram:

a) 2? \_\_\_\_\_

b) an odd number? \_\_\_\_\_

c) 0? \_\_\_\_\_

d) 6? \_\_\_\_\_

10. The following table shows how Steve Waugh has got out in cricket.

Bowled	Caught	Other
20%	40%	40%

What is the probability (expressed as a percentage rounded to 1 decimal place) that in his next 2 innings, he is: (Hint: change percentages to fractions and use a tree diagram)

- a) caught both times? \_\_\_\_\_
- b) bowled both times? \_\_\_\_\_
- c) caught at least once? \_\_\_\_\_
- d) not out by the "other" forms of dismissal either time? \_\_\_\_\_