Name: _____

ASM Tuition Academy

The Product Rule for Counting

Instructions:

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
  - there may be more space than you need.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all you're working out.**

Information:

- The marks for each question are shown in brackets
  - use this as a guide as to how much time to spend on each question.

Advice:

- Read each question carefully before you start to answer it.
- Keep an eye on time.
- Try to answer every question.
- Check your answers if you have time at the end.

1. **There are 10 boys and 14 girls in a class.**
   One boy and one girl will be selected to represent the class on the student council.
   Work out the total number of ways of choosing a boy and a girl.

(Total for question 1 is 2 marks)

2. **There are 18 boys and 12 girls in a choir.**
   One boy and one girl will be selected to sing a duet.
   Work out the total number of ways of choosing a boy and a girl.

(Total for question 2 is 2 marks)

3. **There are 15 boys and x girls in a choir.**
   One boy and one girl will be selected to sing a duet.
   Asghar says there are 160 different ways of choosing a boy and a girl.

   Could Asghar be correct?
   You must show your working.

(Total for question 3 is 2 marks)

4. **There are 3 starters and 8 main courses in a hotel.**
   Work out the total number of ways of choosing a starter and a main course.

(Total for question 4 is 2 marks)

5. **There are 3 starters, 6 main courses and 5 desserts in a hotel.**
   Work out the total number of ways of choosing a starter, a main course and a dessert.

(Total for question 5 is 2 marks)

6. **There are 6 starters, 7 main courses and x desserts in a restaurant.**
   Hifza says there are 140 different ways of choosing a starter, a main course and a dessert.

   Could Hifza be correct?
   You must show your working.

(Total for question 6 is 2 marks)

7. A meal deal includes a burger and a drink.
There are 6 burgers and 8 drinks to choose from.

Work out the total number of ways of choosing a burger and a drink.

(Total for question 7 is 2 marks)

8. Mr. Hadi has 7 pairs of pants, 10 shirts and 4 ties.

Work out the total number of ways of choosing a pair of pants, a shirt and a tie.

(Total for question 8 is 2 marks)

9. There are 10 burgers and x drinks to choose from for Dinner.
Sardar says there are 90 different ways to choose a burger and a drink.

Could Sardar be correct?
You must show your working.

(Total for question 9 is 2 marks)

10. There are 52 cards in a deck.
Jojo is going to give one card to Eda and one card to Idris.

How many different ways are there of doing this?

(Total for question 10 is 2 marks)

11. There are 52 cards in a deck.
Zohaib is going to give one card to Moeez and one card to Rayyan and one card to Gull.

How many different ways are there of doing this?

(Total for question 11 is 2 marks)

12. There are 52 cards in a deck
Angel is going to give two cards to Ben.

How many different pairs of cards could Ben get?

(Total for question 12 is 2 marks)

13. There are 40 students in a class.
Two teams are going to be selected to receive a prize.

How many different pairs of students could be selected?

(Total for question 13 is 2 marks)

14. There are 12 teams in a hockey ball league.
Two teams are going to be chosen at random to play a match.

Work out the number of different matches that could take place.

(Total for question 14 is 2 marks)

15. There are 10 teams in a competition.
Each team will play every other team once.

Work out the total number of games played.

(Total for question 15 is 2 marks)

16. There are 14 people in a room.
Each person shakes each other person's hand once.
Work out the number of handshakes that take place.

(Total for question 16 is 2 marks)

17. There are 22 people in a room.
Each person shakes each other person's hand once.

Work out the number of handshakes that take place.

(Total for question 17 is 2 marks)