

SCORE

/100

NAME:.....

1. Construct a truth table for the following symbolic expression:

$$p \vee (\sim q \wedge r)$$

2. In a recent transportation survey, 500 high school seniors were asked to check the appropriate boxes on the following form:

I own an automobile

I own a motorcycle

The results were tabulated as follows: 91 checked the automobile box, 123 checked the motorcycle box, and 29 checked both boxes.

- (a) Draw a Venn diagram illustrating the results of the survey.

- (b) What percent of these students own either an automobile or a motorcycle (or both)?

3. The serial number on a new twenty dollar bill consists of two letters followed by eight digits and then a letter. How many different serial numbers are possible, given the following conditions?

(a) Letters and digits cannot be repeated.

(b) Letters and digits can be repeated.

(c) The first and last letters are repeatable vowels, the second letter is a consonant, and the digits can be repeated.

4. How many 5 card poker hands are possible?

5. How many 5 card poker hands containing exactly 3 Kings are possible?

6. Find the probabilities of drawing the following cards from a standard 52 card deck:

(i) a red card

(ii) a queen

(iii) a red queen

(iv) a card below a 5 (aces count high)