

5) (4 points) Today is your first day driving a city bus. When you leave downtown, you have 10 passengers. At the first stop, 5 get on and 7 get off. At the second stop, 10 get on and 3 get off. At the third stop, 2 get on and 12 get off. What is the bus driver's name?

Michael

6) (3 points) Write in set-builder notation: {Ohio, Florida, Washington, Maine...}

$\{x \mid x \text{ is a state}\}$

7) (3 points) Write in roster-notation: $\{x \mid x \text{ is a color}\}$

$\{\text{red, yellow, blue, green...}\}$

Problems 8 – 10 use the following information:

Let $U = \{5, 6, 7, 8, 9, 10, 11, 12\}$ and let $A = \{x \mid x \text{ is prime}\}$ and $B = \{x \mid x \text{ has two digits}\}$

8) (3 points each) Use \in or \notin below:

$\{5, 7, 11\}$

$\{10, 11, 12\}$

a) $12 \in B$

b) $11 \in A \cap B$

c) $3 \notin A$

9) (3 points each) Use \subseteq or $\not\subseteq$ below:

a) $\{7, 9\} \not\subseteq A$

b) $\{5, 7\} \subseteq B'$

10) (4 points each) Find the following sets...

a) $A \cup B$

$\{5, 7, 10, 11, 12\}$

b) $(A \cup B)'$

$\{6, 8, 9\}$

c) $A - B$

$\{5, 7\}$

d) Subsets of B

$\{10, 11, 12\}$ $\{10, 11\}$

$\{10, 12\}$

$\{11, 12\}$

$\{10\}$

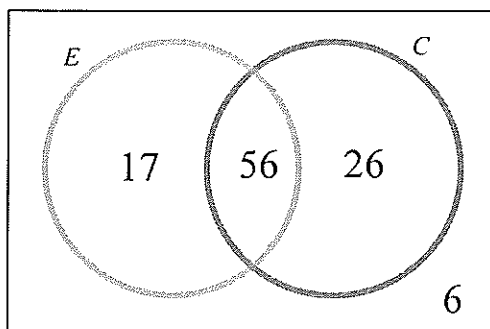
$\{11\}$

$\{12\}$

\emptyset

*49*³

- 11) (6 points) 100 adults who watch British television were surveyed. The results are given in the Venn diagram below where E = Adults who watch *Eight out of Ten Cats* and C = Adults who watch *Countdown*. Interpret, in English, what each number in the Venn diagram means for this example:



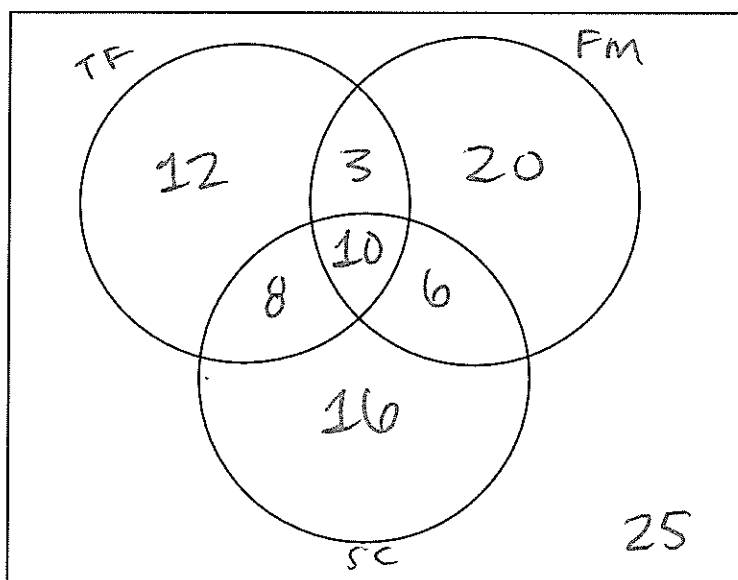
17 people only watch 80010C
 56 people watch both
 26 people only watch Countdown
 6 people watch neither

- 12) (7 points part a; 4 points else) A recent survey was conducted where 100 people were asked which of the following TV shows they watched:

33 saw *The Fix* — TF
 39 saw *Future Man* — FM
 40 saw *Schitt's Creek* — SC
 13 saw *The Fix* and *Future Man*
 18 saw *The Fix* and *Schitt's Creek*
 16 saw *Future Man* and *Schitt's Creek*
 10 saw all three

Use the given this information to answer the following questions. Be sure to write the numbers you are using for the sums:

- a) Draw and label a Venn diagram:



- b) How many people watch *Schitt's Creek* or *The Fix* but not *Future Man*?

$$12 + 8 + 16 = 36$$

- c) How many people have not watched *The Fix*?

$$20 + 6 + 16 + 25 = 67$$

- d) How many people watch at least two of these shows?

$$3 + 8 + 6 + 10 = 27$$

25⁴