AFM   PIECEWISE FUNCTIONS   ACT. #75

1. A CONSTRUCTION WORKER EARNS $17.00 PER HOUR FOR THE FIRST 40 HOURS OF WORK AND $25.50 PER HOURS WORKED IN EXCESS OF 40. WRITE A PIECEWISE FUNCTION THAT MODELS THIS PAY.

FIND THE PAY FOR THE FOLLOWING HOURS:
A) 38 HOURS
B) 46 HOURS
C) 64 HOURS

2. DURING A PARTICULAR YEAR, TAXES OWED ARE DETERMINED BY THE PIECEWISE BELOW:

A) WHAT ARE THE TAXES FOR AN INCOME OF $60,000?
B) WHAT ARE THE TAXES FOR AN INCOME OF $16,500?
C) WHAT ARE THE TAXES FOR AN INCOME OF $35,000?

$$T(x) = \begin{cases} 0.15x & \text{if } 0 \le x < 17{,}900 \\ 0.28(x - 17{,}900) + 2685 & \text{if } 17{,}900 \le x < 43{,}250 \\ 0.31(x - 43{,}250) + 9783 & \text{if } x \ge 43{,}250 \end{cases}$$

3. SOUTHEAST ELECTRIC CHARGES 9 CENTS PER KILOWATT-HOUR FOR THE FIRST 200 kWH. THEY ALSO CHARGE 11 CENTS PER KILOWATT-HOUR FOR ALL ELECTRICAL USAGE OVER 200 kWH.

A) WRITE A PIECEWISE FUNCTION THAT MODELS THIS QUESTION.
B) WHAT IS THE CHARGE FOR USING 360 kWH?
C) WHAT IS THE CHARGE FOR USING 156 kWH?

4. A CELLPHONE COMPANY CHARGES A FLAT RATE OF $55 FOR TALKING UP TO 100 MINUTES. THEY CHARGE .08 CENTS FOR ANY MINUTES OVER 100 PLUS THE RATE FOR THE FIRST 100 MINUTES.

A. CREATE A PIECEWISE FUNCTION THAT MODELS THIS QUESTION.
B. WHAT IS THE CHARGE FOR TALKING 89 MINUTES?
C. WHAT IS THE CHARGE FOR TALKING 195 MINUTES?