CPSC 421/501 Oct 22,2020 - (M) description of a standard Turing machine -(M,w) in in in in plus an import to M - There are unrecognizable languages Ch.4: M is a Turng machine { that accepts w $-A_{TM} = \{ \langle M, w \rangle \}$ is undecidable - Arm is recognizable (by a universal Turing machine) - Complement (AIM) is not recognizable

Breckout Room Problems () Give a more detailed description of a universal TM, i.e., that given (M, W) can "simulate" M's computation on imput w. (2) Given that AIM is undecidable, show that HALT = { (M, w} | M halts } The { (M, w} | on input in } is undecidable

(halt means reaches either gaccept or greject).

(3) If L is undecidable and recognizable show that L comp = 5th L is unrecognizable