

Final, Dec 12, 2012.

1) $F(x) = \int_A^x f(t) dt \Rightarrow F(A) = 0.$
 $F'(x) = f(x).$ for all $x > A.$

a) critical points ~~at~~ occurs when $F'(x) = 0 \Rightarrow f(x) = 0.$
 \Rightarrow at $x = C, E, G, \text{I}.$

b)	x	A	B	C	D	E	F	G	H	I
	$F'(x)$.	-	-	0	+	+	0	-	-

local max: at $x = E.$

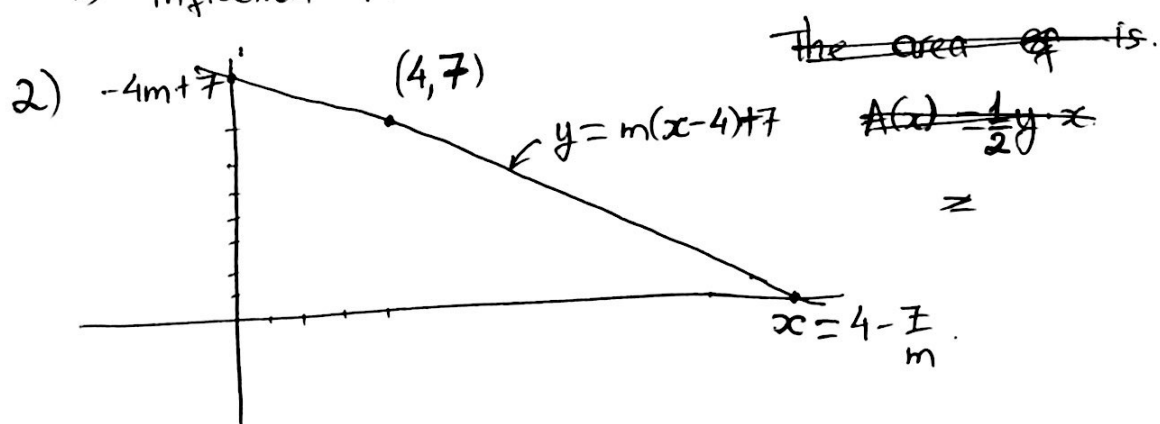
local min at $x = C.$

d) Its absolute maximum is at $x = E.$

e) $F''(x) = f'(x) = 0$ at $x = B, D, F, G, H.$

	x	A	B	C	D	E	F	G	H	I
	$F''(x)$	-	0	+	+	0	-	0	+	0

\Rightarrow inflection points at $x = B, D, F, G, H.$



The x-intercept is $x = 4 - \frac{7}{m}.$

y-intercept is $y = -4m + 7.$

\Rightarrow The area function is $A(m) = \frac{1}{2}(-4m+7)(4-\frac{7}{m})$