

1. Let $f(x) = 2$ and $a = 0$.

Then $A_f(x) = \int_0^x 2 dt$.

- (a) Find $A_f(0)$, $A_f(3)$, $A_f(-3)$, $A_f(4)$
- (b) Based on the evidence you found in part (a), you may have a hypothesis about what a formula for $A_f(x)$ might be. Show that this hypothesis is true for $x > 0$.
- (c) Show that your hypothesis is true for $x < 0$.
- (d) How is A_f related to f ?
2. Let $f(x) = 2x + 4$.

- (a) Use what we already know to find a formula for

$$F(x) = \int_0^x f(t) dt.$$

- (b) Use (a) and techniques from Section 5.1 to find

$$G(x) = \int_{-1}^x f(t) dt$$

- (c) Use (a) and techniques from Section 5.1 to find

$$H(x) = \int_1^x f(t) dt$$