

2. [8 points] The UM Etsy Club is 3D printing a new bracelet design called the Helix Monster. The cost of the materials for one bracelet depends on the inner circumference of that bracelet. The cost of materials  $B$  (in dollars) for a Helix Monster bracelet with an inner circumference of  $c$  centimeters is given by:

$$B = h(c) = 2 + 0.4c$$

- a. [2 points] If the club members want to spend at most \$12 in materials on a Helix Monster bracelet, what is the largest the bracelet's inner circumference could be? *Include units.*

$$c = \underline{\hspace{2cm}}$$

- b. [3 points] Another member creates a Swirling Storm design that has different production costs. The cost ( $B$ , in dollars) to produce one Swirling Storm design with inner circumference  $c$  is given by

$$B = s(c) = 2.5 + 0.25c$$

For what values of  $c$  does the Helix Monster design cost less? For what values of  $c$  does the Swirling Storm design cost less? *Express your answers using inequalities or interval notation below. Show all work. No explanation needed.*

Helix Monster is cheaper when:  $\underline{\hspace{2cm}}$

Swirling Storm is cheaper when:  $\underline{\hspace{2cm}}$

- c. [3 points] The club decides to produce a large batch of Swirling Storm bracelets with inner circumference 24cm. The price to rent the printer for the day is \$120. Write an expression for the total cost  $T$  (in dollars) for producing  $n$  Swirling Storm bracelets for inner circumference 24cm.

$$T = \underline{\hspace{2cm}}$$