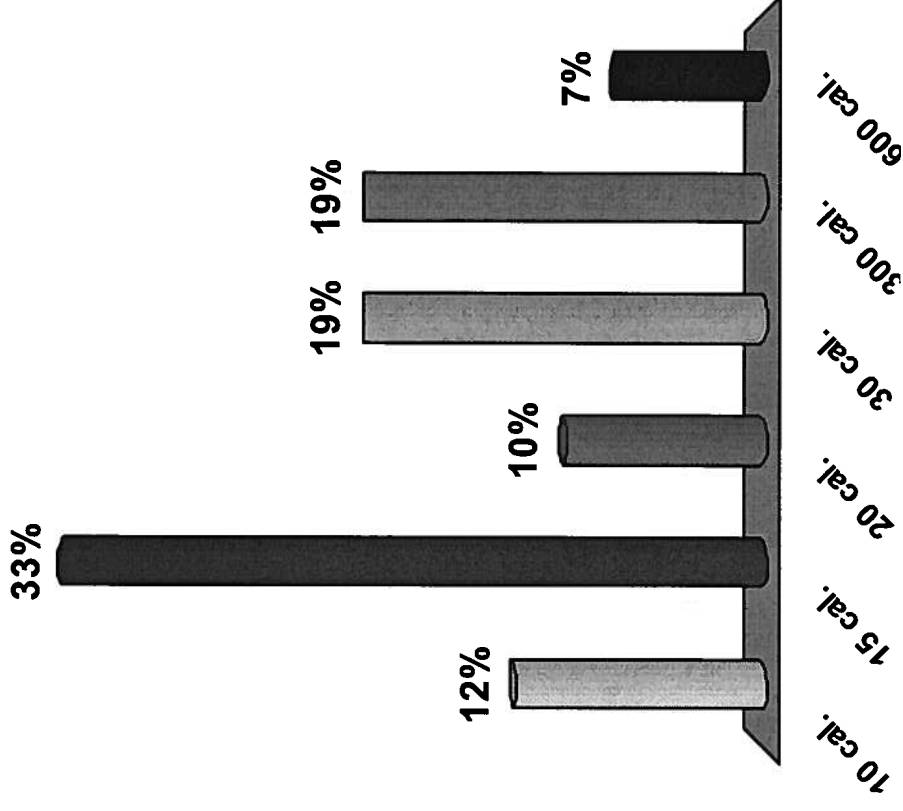


The specific heat,  $c$ , of a material is the amount of heat energy which must be added to increase 1gm by  $1^{\circ}\text{C}$ . For ice (frozen  $\text{H}_2\text{O}$ )  $c = 0.5 \text{ cal/gm}\cdot\text{C}^{\circ}$ . How many calories are required to heat 20gm of ice from  $-60^{\circ}\text{C}$  to  $-30^{\circ}\text{C}$ ?

- a) 10 cal.
- b) 15 cal.
- c) 20 cal.
- d) 30 cal.
- e) 300 cal.
- f) 600 cal.



**The correct answer is e) 300 cal.;**  
**as follows.**

Definition of Specific heat:

$$c = Q/M*\Delta T = 0.5\text{cal/gm}^\circ\text{C}.$$

Therefore, heat required is

$$Q = c*M*\Delta T = 0.5*20*(-30^\circ\text{C} - (-60^\circ\text{C}))\text{cal.}$$
$$= 300 \text{ cal (e)}$$