

**Brightening Sun  
and Decreasing Heat  
(Answers)****Brightening Sun**

1.

Number of minutes since Sun was released	Number of units of brightness
1	9
2	15
3	21
4	27
5	33
10	63

- For each additional minute since Sun was released, the number of units of brightness increases by 6.
- Let  $m$  represent the number of minutes since Sun was released and  $b$  represent the number of units of brightness:  $b = 6m + 3$
- The constant in the model is the hexagon. This is the  $+ 3$  in the equation.
- The model would have only the hexagon.
- $b = 6(16) + 3 = 99$ ; the number of units of brightness would be 99 units.
- If the number of units of brightness increased by 6 every 0.5 min, then they would increase by 12 every minute. Then, the equation  $b = 12m + 3$  represents the number of units of brightness after  $m$  minutes.

**Brightening Sun  
and Decreasing Heat  
(Answers) (cont'd)****Decreasing Heat**

1.

Number of hours since Sun was taken	Temperature (°C)
0	15
1.5	11.25
3	7.5
4.5	3.75
6	0
9	-7.5

2. For every 1.5 h since Sun was taken, the temperature decreases by  $3.75^{\circ}\text{C}$ .
3. Let  $h$  represent the number of hours since Sun was taken, and  $t$  represent the temperature. For every 3 h, the temperature decreases by  $7.5^{\circ}\text{C}$ .  
So it decreases by  $7.5^{\circ}\text{C} \div 3 \text{ h} = 2.5^{\circ}\text{C}/\text{h}$ .  
Equation:  $t = 15 - 2.5h$
4. a)  $t = 15 - 2.5(5) = 2.5$ ;  $2.5^{\circ}\text{C}$   
b)  $t = 15 - 2.5(24) = -45$ ;  $-45^{\circ}\text{C}$
5. From the table, it will take 6 h for the temperature to reach the freezing point,  $0^{\circ}\text{C}$ .