Name_____ Date_____

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

2. For each additional minute since Sun was released, the number of units of brightness increases by 6.

3. Let m represent the number of minutes since Sun was released and b represent the number of units of brightness: $b = 6m + 3$

4. The constant in the model is the hexagon. This is the + 3 in the equation.

5. The model would have only the hexagon.

6. $b = 6(16) + 3 = 99$; the number of units of brightness would be 99 units.

7. 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 is $b = 12m + 3$ 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°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°C.
So it decreases by 7.5°C ÷ 3 h = 2.5°C/h.
Equation: $t = 15 - 2.5h$

4. a) $t = 15 - 2.5(5) = 2.5$; 2.5°C

   b) $t = 15 - 2.5(24) = -45$; −45°C

5. From the table, it will take 6 h for the temperature to reach the freezing point, 0°C.