Brightening Sun   
and Decreasing Heat   
(Answers)

**Patterns and Relations**

**Unit 2 Line Master 6d**

**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* = 6*m* + 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 *b* = 12*m* + 3 represents the number of units of brightness after *m* minutes.

Brightening Sun   
and Decreasing Heat   
(Answers) (cont’d)

**Patterns and Relations**

**Unit 2 Line Master 6e**

**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 – 2.5*h*

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.