Lesson 9.1 Growing Number Patterns

Increasing Pattern
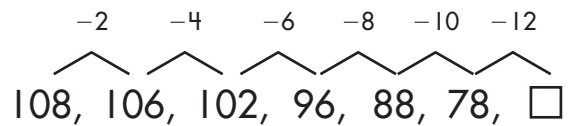
+2 +4 +8 +16

2, 4, 8, 16, ☐
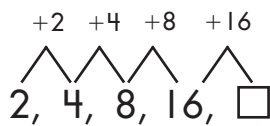
4 − 2 = 2
  +2
8 − 4 = 4
  +4
16 − 8 = 8
  +8

Think: Each number is added to itself to create the increasing pattern.

16 + 16 = 32

The missing number is 32.

To find a missing number in a growing pattern:
1. Find the difference between numbers that are next to each other.
2. The differences in the number series will show the pattern.
3. Add or subtract to find the missing numbers.

Decreasing Pattern

−2   −4   −6   −8   −10   −12

108, 106, 102, 96, 88, 78, ☐

108 − 106 = 2
   −2
106 − 102 = 4
   −4
102 − 96 = 6
   −6
96 − 88 = 8
   −8
88 − 78 = 10
   −10

Think: Count by 2s to get the number for the decreasing pattern.

78 − 12 = 66

The missing number is 66.

Complete each pattern.

a **b**

1. 11, 15, 20, 26, 33, ☐ , ☐   9, 12, 18, 27, ☐ , 54, ☐

2. 1, 2, 4, 7, ☐ , 16, 22   16, 28, 52, 100, 196, ☐

3. 5, 7, 11, 17, ☐ , 35, ☐   158, 156, 152, 146, ☐ , ☐ , ☐

4. 1128, 1096, 1032, 936, ☐   88, 110, 154, 220, ☐ , ☐

5. 460, 450, 430, ☐ , 360, ☐   923, 915, 904, 890, ☐ , ☐

6. 180, 176, 168, 156, 140, ☐   64, 74, 86, 100, ☐

7. ☐ , ☐ , 65, 80, 100, 125   ☐ , ☐ , 54, 96, 152, 222