

PA5-2: Increasing Sequences

In an **increasing sequence**, each number is greater than the one before it.

Deborah wants to continue the number pattern:

6, 8, 10, 12, ?

She finds the **difference** between the first two numbers:



$\textcircled{2}$
6, 8, 10, 12, ?

She finds that the difference between the other numbers in the pattern is also 2, so the pattern was made by adding 2:

$\textcircled{2}$ $\textcircled{2}$ $\textcircled{2}$
6, 8, 10, 12, ?

To continue the pattern, Deborah adds 2 to the last number in the sequence.

So the final number in the pattern is 14:

$\textcircled{2}$ $\textcircled{2}$ $\textcircled{2}$ $\textcircled{2}$
6, 8, 10, 12, 14

1. Extend the following patterns by first finding the gap between the numbers.

a) 1 $\textcircled{\quad}$, 4 $\textcircled{\quad}$, 7 $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$

b) 1 $\textcircled{\quad}$, 5 $\textcircled{\quad}$, 9 $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$

c) 3 $\textcircled{\quad}$, 8 $\textcircled{\quad}$, 13 $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$

d) 3 $\textcircled{\quad}$, 6 $\textcircled{\quad}$, 9 $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$

e) 1 $\textcircled{\quad}$, 6 $\textcircled{\quad}$, 11 $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$

f) 4 $\textcircled{\quad}$, 10 $\textcircled{\quad}$, 16 $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$

g) 2 $\textcircled{\quad}$, 12 $\textcircled{\quad}$, 22 $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$

h) 7 $\textcircled{\quad}$, 13 $\textcircled{\quad}$, 19 $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$

i) 31 $\textcircled{\quad}$, 34 $\textcircled{\quad}$, 37 $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$

j) 82 $\textcircled{\quad}$, 88 $\textcircled{\quad}$, 94 $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$

k) 2 $\textcircled{\quad}$, 13 $\textcircled{\quad}$, 24 $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$

l) 8 $\textcircled{\quad}$, 17 $\textcircled{\quad}$, 26 $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$

m) 5 $\textcircled{\quad}$, 11 $\textcircled{\quad}$, 17 $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$

n) 0 $\textcircled{\quad}$, 4 $\textcircled{\quad}$, 8 $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$, $\textcircled{\quad}$