

13. [Number Patterns]

Skill 13.1 Completing number patterns by adding the same number (1).

MM2.2 1 2 3 4 4
MM3.1 1 2 3 4 4

- Find the amount added to get from one number to the next number.
- Add that amount to the last number of the pattern.

q. 3, 9, 15, 21, 27, _ , _

A. 3, 9, 15, 21, 27, 33 , 39

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ +6 & +6 & +6 & +6 & +6 & +6 \end{array}$

a) 4, 7, 10, 13, 16, 19 , 22

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ +3 & +3 & +3 & +3 & +3 & +3 \end{array}$

b) 4, 6, 8, 10, 12, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

c) 70, 80, 90, 100, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

d) 25, 35, 45, 55, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

e) 12, 14, 16, 18, 20, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

f) 24, 28, 32, 36, 40, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

g) 7, 10, 13, 16, 19, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

h) 1, 7, 13, 19, 25, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

i) 19, 25, 31, 37, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

j) 37, 40, 43, 46, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

k) 48, 53, 58, 63, 68, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

l) 16, 21, 26, 31, 36, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

Skill 13.1 Completing number patterns by adding the same number (2).

MM2.2 1 1 2 2 3 3 4 4
MM3.1 1 1 2 2 3 3 4 4

m)

26, 30, 34, 38, 42, ,



n)

35, 37, 39, 41, 43, ,



o)

38, 44, 50, 56, ,



p)

3, 5, 7, 9, 11, ,



q)

7, 17, 27, 37, 47, ,



r)

4, 12, 20, 28, 36, ,



s)

7, 15, 23, 31, 39, ,



t)

2, 12, 22, 32, 42, ,



u)

54, 56, 58, 60, ,



v)

40, 48, 56, 64, ,



w)

9, 12, 15, 18, 21, ,



x)

27, 31, 35, 39, 43, ,



y)

13, 18, 23, 28, 33, ,



z)

42, 46, 50, 54, 58, ,



Skill 13.2 Completing number patterns by subtracting the same number (1).

MM2.2 1 1 2 2 3 3 4 4
MM3.1 1 1 2 2 3 3 4 4

- Find the amount taken away to get from one number to the next number.
- Subtract that amount from the last number of the pattern.

q. 48, 44, 40, 36, _ , _

A. 48, 44, 40, 36, 32 , 28
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \\ -4 & -4 & -4 & -4 & -4 & \\ \hline & & & & & \end{array}$

a) 40, 35, 30, 25, 20 , 15
 $\begin{array}{ccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ -5 & -5 & -5 & -5 & -5 \\ \hline & & & & \end{array}$

b) 58, 48, 38, 28, _ , _
 $\begin{array}{ccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & & \end{array}$

c) 24, 22, 20, 18, 16, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & & & \end{array}$

d) 57, 55, 53, 51, 49, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & & & \end{array}$

e) 48, 45, 42, 39, 36, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & & & \end{array}$

f) 32, 29, 26, 23, 20, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & & & \end{array}$

g) 46, 40, 34, 28, 22, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & & & \end{array}$

h) 59, 55, 51, 47, 43, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & & & \end{array}$

i) 25, 23, 21, 19, 17, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & & & \end{array}$

j) 39, 33, 27, 21, 15, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & & & \end{array}$

k) 63, 57, 51, 45, 39, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & & & \end{array}$

l) 48, 42, 36, 30, 24, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & & & \end{array}$

Skill 13.2 Completing number patterns by subtracting the same number
(2).

MM2.2 1 1 2 2 3 4 4
MM3.1 1 1 2 2 3 3 4 4

m) 58, 50, 42, 34, 26, ,

↪ ↪ ↪ ↪ ↪ ↪

.....

n) 75, 65, 55, 45, 35, ,

↪ ↪ ↪ ↪ ↪ ↪

.....

o) 49, 42, 35, 28, 21, ,

↪ ↪ ↪ ↪ ↪ ↪

.....

p) 44, 39, 34, 29, 24, ,

↪ ↪ ↪ ↪ ↪ ↪

.....

q) 54, 46, 38, 30, 22, ,

↪ ↪ ↪ ↪ ↪ ↪

.....

r) 83, 73, 63, 53, 43, ,

↪ ↪ ↪ ↪ ↪ ↪

.....

s) 60, 53, 46, 39, 32, ,

↪ ↪ ↪ ↪ ↪ ↪

.....

t) 47, 42, 37, 32, 27, ,

↪ ↪ ↪ ↪ ↪ ↪

.....

u) 44, 37, 30, 23, 16, ,

↪ ↪ ↪ ↪ ↪ ↪

.....

v) 49, 41, 33, 25, 17, ,

↪ ↪ ↪ ↪ ↪ ↪

.....

w) 80, 72, 64, 56, 48, ,

↪ ↪ ↪ ↪ ↪ ↪

.....

x) 60, 51, 42, 33, 24, ,

↪ ↪ ↪ ↪ ↪ ↪

.....

y) 45, 38, 31, 24, 17, ,

↪ ↪ ↪ ↪ ↪ ↪

.....

z) 50, 42, 34, 26, 18, ,

↪ ↪ ↪ ↪ ↪ ↪

.....

Skill 13.3 Completing number patterns by adding changing numbers.

MM2.2 11 22 33 44
MM3.1 11 22 33 44

- Find the amounts added to get from one number to the next number.
- Check all the way through the pattern.
- Add these amounts in order to the last number of the pattern.

Q. 2, 4, 7, 9, 12, _ , _

A. 2, 4, 7, 9, 12, 14 , 17

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ +2 & +3 & +2 & +3 & +2 & +3 \end{array}$

a) 1, 5, 7, 11, 13, 17 , 19

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ +4 & +2 & +4 & +2 & +4 & +2 \end{array}$

b) 4, 5, 10, 11, 16, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

c) 2, 6, 7, 11, 12, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

d) 4, 7, 11, 14, 18, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

e) 1, 5, 10, 14, 19, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

f) 3, 6, 8, 11, 13, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

g) 2, 4, 8, 10, 14, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

h) 4, 7, 12, 15, 20, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

i) 8, 9, 12, 13, 16, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

j) 2, 4, 9, 11, 16, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

k) 6, 8, 14, 16, 22, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

l) 5, 8, 9, 12, 13, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

m) 4, 8, 11, 15, 18, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

n) 2, 7, 8, 13, 14, _ , _

$\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

Skill 13.4 Completing number patterns by subtracting changing numbers.

MM2.2 11 22 33 44
MM3.1 11 22 33 44

- Find the amounts taken away to get from one number to the next number.
- Check all the way through the pattern.
- Subtract these amounts in order from the last number of the pattern.

Q.
22, 20, 16, 14, 10, _ , _

A. 22, 20, 16, 14, 10, 8, 4
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ -2 & -4 & -2 & -4 & -2 & -4 \end{array}$

a)
22, 20, 15, 13, 8, 6 , 1
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ -2 & -5 & -2 & -5 & -2 & -5 \end{array}$

b)
17, 14, 13, 10, 9, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

c)
21, 20, 15, 14, 9, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

d)
27, 24, 20, 17, 13, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

e)
28, 25, 20, 17, 12, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

f)
25, 21, 18, 14, 11, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

g)
29, 25, 20, 16, 11, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

h)
33, 30, 28, 25, 23, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

i)
26, 22, 20, 16, 14, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

j)
25, 23, 18, 16, 11, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

k)
19, 17, 16, 14, 13, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

l)
30, 28, 22, 20, 14, _ , _
 $\begin{array}{cccccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \dots & \dots & \dots & \dots & \dots & \dots \end{array}$

Skill 13.5 Completing number patterns by multiplying by the same number.

MM2.2 11 22 33 44
MM3.1 11 22 33 44

- Find the amount you multiply by to get from one number to the next number.
- Multiply the last number of the pattern by that amount.

Q. 4, 8, 16, 32, A. 4, 8, 16, 32, 64
 $\begin{array}{cccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline \times 2 & \times 2 & \times 2 & \times 2 \end{array}$

a) 15, 30, 60, 120, b) 2, 6, 18, 54,
 $\begin{array}{cccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline \times 2 & \times 2 & \times 2 & \times 2 \end{array}$

c) 30, 60, 120, 240, d) 5, 15, 45, 135,
 $\begin{array}{cccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & \end{array}$

e) 4, 12, 36, 108, f) 9, 27, 81, 243,
 $\begin{array}{cccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & \end{array}$

g) 10, 30, 90, 270, h) 20, 60, 180, 540,
 $\begin{array}{cccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & \end{array}$

i) 1, 5, 25, 125, j) 1, 10, 100, 1000,
 $\begin{array}{cccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & \end{array}$

k) 5, 50, 500, 5000, l) 10, 50, 250, 1250,
 $\begin{array}{cccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & \end{array}$

m) 4, 20, 100, 500, n) 7, 70, 700, 7000,
 $\begin{array}{cccc} \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\ \hline & & & \end{array}$