Mathematics Grade 9 Week 4

Number sequence

Number sequences

Example 1

Write down the missing terms in each of the following sequences.

(a)   4, 7, 10, _____, _____ .

(b)   96, 85, 74, _____, _____ .

(c) $\dfrac{1}{4}$, $\dfrac{1}{2}$, $\dfrac{3}{4}$, _____, _____ .

(d)   −9, −7, −5, _____, _____ .

(e)   50, _____, _____, 68, 74.

Solution

(a) $\overset{+3}{\frown}$ $\overset{+3}{\frown}$ $\overset{+3}{\frown}$ $\overset{+3}{\frown}$
  4, 7, 10, 13, 16 .

(b) $\overset{-11}{\frown}$ $\overset{-11}{\frown}$ $\overset{-11}{\frown}$ $\overset{-11}{\frown}$
  96, 85, 74, <u>63</u>, <u>52</u>.

(c) $\dfrac{1}{4}$, $\dfrac{1}{2}$, $\dfrac{3}{4}$, 1, $1\dfrac{1}{4}$.

> Observe that $\frac{1}{2} = \frac{2}{4}$ and that $1 = \frac{4}{4}$ gives a sequence which is easier to complete. (use of common denominator 4)

(d) $\overset{+2}{\frown}$ $\overset{+2}{\frown}$ $\overset{+2}{\frown}$ $\overset{+2}{\frown}$
  − 9, − 7, − 5, <u>−3</u>, <u>−1</u>.

(e) $\overset{-6}{\frown}$ $\overset{-6}{\frown}$ $\overset{-6}{\frown}$ $\overset{-6}{\frown}$
  50, <u>56</u>, <u>62</u>, 68, 74.

Example 2

Write the missing terms in each of the following sequence of ordered pairs.

(a)   (0 , 5), (1 , 7), (2 , 9), (_____ , _____), (_____ , _____).

(b) $(3, \frac{1}{6})$, $(7 , $_____$)$, $(12 , \frac{1}{2})$, $($_____$, \frac{2}{3})$, $($_____$, $_____$)$.

Note:
For a sequence of ordered pairs, consider as two separate sequences of numbers, one for the first set of numbers (x values) and one for the second set of numbers (y values).

Solution

(a)   (0 , 5), (1 , 7), (2 , 9), (<u>3</u> , <u>11</u>), (<u>4</u> , <u>13</u>).

(b) $(3 , \frac{1}{6})$, $(7 , \frac{1}{3})$, $(12 , \frac{1}{2})$, $(\underline{18} , \frac{2}{3})$, $(\underline{25} , \frac{5}{6})$.

(Write all the fractions in equivalent form with denominator 6.)

1. Complete the following sequences.

(a) 10, 13, 16, ____ , ____ .

(b) 58, 54, 50, ____ , ____ .

(c) 3, 6, 12, ____ , ____ .

(d) 100, 50, 25, ____ , ____ .

(e) −16, −9, −2, ____ , ____ .

(f) −22, −31, −40, ____ , ____ .

(g) 0.2, 0.4, 0.6, ____ , ____ .

(h) 37.5, 7.5, 1.5, ____ , ____ .

(i) $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, ____ , ____ .

(j) $\frac{1}{5}$, $\frac{3}{10}$, $\frac{2}{5}$, ____ , ____ .

2. Write the missing terms in each of the following sequence of ordered pairs.

(a) (10,1) , (9,2), (8, 3),(____ , ____), (____ , ____) .

(b) (1, 48), (2, 24), (4, 12), (____ , ____) , (____ , ____)

(c) (1, 25), (4, 16) , (____ , ____), (16, ____), (____ , 1)

(d) ($\frac{1}{8}$,0.8) ,($\frac{3}{16}$, ____), (____ , 0.2), (____ , 0.1), ($\frac{3}{8}$, ____).

(e) (1, −12), (____ , ____), (27, −18), (____ , ____) , (125, −24) .

(f) (0.2, 1), (0.4, 1.4), (0.8, ____), (____ , ____), (____ , 2.6)

(g) (1, $\frac{1}{2}$), (____ , ____), (4,2 $\frac{1}{2}$), (8, ____), (____ , 4 $\frac{1}{2}$).

(h) (−5, 10), (−3, ____) , (____ , 40), (1, 80), (____ , ____ 0) .