p. 44-45 Arithmetic Sequences 9.2

p. 44

Find the next numbers in the pattern.

Ex 1) 4, 9, 14, 19, 24, 29, 34 (+5)

Ex 2) -8, -2, 4, 10, 16, 22, 28 (+6)

p. 44-45 Arithmetic Sequences 9.2

Sequence: ordered list of numbers; each number in a sequence is called a term.

Arithmetic Sequence: a sequence where hdfk#whup #diwhu#wkh#1vw#lv# found by adding d#frqvwdqw#wr#wkh#suhylrxv#whup 1

Frp p rq#G liihuhqfh#g,: the constant added to get the next term. This can be any real # including positive and negative (fraction, decimal)

p. 45

If the first term of the arithmetic sequence is 7 and the common difference equals 3...what is the 279th term?

Do you REALLY want to write out all 279 terms???

H{sdfl#Irup xcl: formula that defines a sequence; used to ghwhup lqh#wkh#qwk#whup 1

Explicit Formula for an Arithmetic Sequence

$$a_n = a_1 + (n - 1)d$$

n^{th} term, first term, common difference

Example: If the first term of an arithmetic sequence is 7, and the common difference is 3, what is the 279th term?

$$a_{279} = 7 + (279-1)\cdot(3)$$

$$= 841$$

Write an explicit formula for nth term of the arithmetic sequence
Then find a_{25} (The 25th term)

p. 44

1.) $a_1 = 50$ Common Difference = 5

$a_n = 50 + (n-1)(5)$

$a_{25} = 50 + (25-1)(5)$

$= 170$

2.) $a_1 = 11$ Common Difference = -6

$a_n = 11 + (n-1)(-6)$

$a_{25} = 11 + (25-1)(-6)$

$= -133$

Write an explicit formula for the n^{th} term of the arithmetic sequence.
Then find a_{37} (The 37th term).

3.) 10, -12, -34, -56, -78, ... a_1 $d = -22$

$a_n = 10 + (n-1)(-22)$

$a_{37} = 10 + (37-1)(-22)$

$= -782$

4.) 11, 12.1, 13.2, 14.3, 15.4, ... a_1 $d = 1.1$

$a_n = 11 + (n-1)(1.1)$

$a_{37} = 11 + (37-1)(1.1)$

$= 50.6$

Practice!