3, 8, 13, 18, 23...

Algebra 1 3.5

Recognize arithmetic sequences

Relate arithmetic sequences to linear functions

sequence

term

arithmetic sequence

common difference (d)

whiteboards

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

$a_n = 3 + (n-1) \cdot 5$

$a_{10} = 3 + (9)5$

$3 + 45$

48

Example 2 Find the Next Term

Find the next three terms of the arithmetic sequence 15, 9, 3, −3, … .

$-9, -15, -21$

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

$a_n = 15 + (n-1)(-6)$

Example 3 Find the *n*th Term

a. Write an equation for the *n*th term of the arithmetic sequence $-12, -8, -4, 0, \ldots$.

$a_n = -12 + (n-1) \cdot 4$

b. Find the 9th term of the sequence.

$= -12 + (8)4$

$= -12 + 32 = 20$

c. Graph the first five terms of the sequence.

1	-12
2	-8
3	-4
4	0
5	4

Write an equation for the *n*th term of each arithmetic sequence. Then graph the first five terms of the sequence.

19. −2, 3, 8, 13, …

$a_n = -2 + (n-1)\cdot 5$

1	-2
2	3
3	8
4	13
5	18

Write an equation for the *n*th term of each arithmetic sequence. Then graph the first five terms of the sequence.

5. 15, 13, 11, 9, …

, …

$a_n = 15 + (n-1)(-2)$

y varies directly as x.

$y = k \cdot x$

$y = 6$ when $x = 10$

$\frac{6}{10} = \frac{k \cdot 10}{10}$

$0.6 = k$

$y = 0.6x$

find $x = 30$ when $y = 18$

$\frac{18}{0.6} = \frac{0.6x}{0.6}$

$y = 22$ when $x = 8$

$y = kx$

$\frac{22}{8} = \frac{k \cdot 8}{8}$

$2.75 = k$

$y = 2.75x$

$y = ?$ when $x = -16$

$= 2.75(-16)$

$y = -44$