3-5 Arithmetic Sequences

Sequence – a set of numbers
the #s are called the **terms** of the sequence

arithmetic sequence – constant
common difference is the difference between the terms (it is constant)

Arithmetic Sequence

a_1 = 1st term — a_1

a_2 = 2nd term — $a_1 + d$

a_3 = 3rd term — $a_1 + 2d$

a_n = any term, nth term — a_{4th} $a_1 + 3d$

$a_1 + 4d$

Formula:

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

a_1	a_2	a_3	a_4	a_5	a_6	a_7
8	11	14	17	20	23	26

+3 +3 +3

formula: $a_1 + (n-1)d$

$8 + (7-1)3$

$8 + (6)3$

$8 + 18$

26

n = # of the term you are solving for

n = the term you are trying to find.

$-12 \underset{+4}{\_\_} -8 \underset{+4}{\_\_} -4 \underset{+4}{\_\_} 0$

$a_1 = -12$

$d = +4$

$\boxed{a_1 + (n-1)d}$

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

$a_9 = -12 + (9-1)4$

$a_9 = 20$

Graph:

$(1, -12)$

$(2, -8)$

0.42, 0.84, 1.26, 1.68

+0.42 +0.42 +0.42

$a_1 = 0.42$

$d = +0.42$

$f(n) = 0.42 + (n-1)\,0.42$

the function of $f(n)$

y = dependent variable

$f(n) = 0.42n$

Domain, Range

(x, y)

8.) $-3, 1, 5, 9$

$+4 \quad +4 \quad +4$

yes

22.) hrs a_1 a_2 a_3

# of rides 2 (+2) 4 (+2) 6

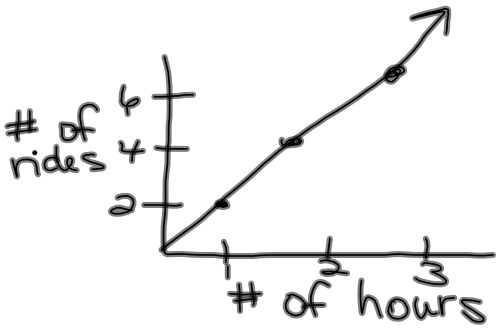
$a_1 = 2$

$d = 2$

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

a.) $f(n) = 2 + (n-1)2$

write a function



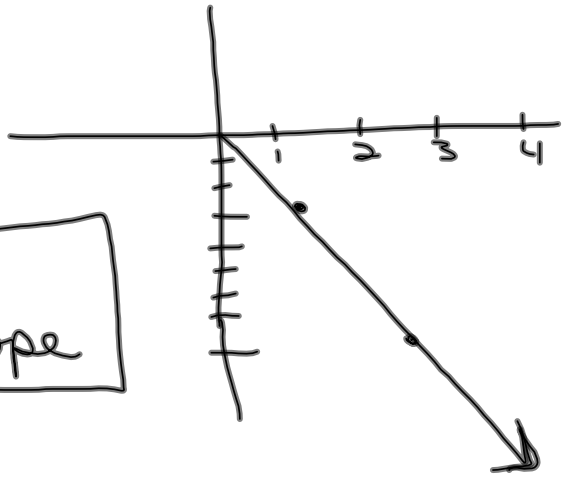
18.) $-3, -8, -13, -18, -23$ (each step -5)

$a_1 = -3$

$d = -5$

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

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



ie $d = -d$
negative slope