Be sure to have your
textbook in class
from now on ☺

Pick up the Warm Up

Multiple Choice. The real reason for Mr. Cedarlund's scar is:

a) He fell off a sled going down a steep snowy hill.
b) He really DID get in a fight at a restaurant when a Boise State fan through a French fry at him.
c) His face attacked the sharp claws of his new puppy.
d) He did not wear enough sun screen or hats when he was younger.

f

TRUE or FALSE

_____ Once class starts, you should only write on your homework with a pen of a different color.
However, if you did not really spend much time on the assignment, please <u>don't</u> try to catch up during class. Just do it later instead and turn it in late.

_____ The largest portion of your self reported HW score is whether you are showing detail on all problems requiring a process.

_____ When absent, always check Mr. Cedarlund's website before I get back to class.

Types of Sequences

An **arithmetic sequence** is a sequence with an addition (or subtraction) **sequence generator**. The number added to each term to get the next term is called the **common difference..**

A **geometric sequence** is a sequence with a multiplication (or division) generator. The number multiplied by each term to get the next term is called the **common ratio** or the **multiplier**.

Classify the sequences as Geometric, Arithmetic, or neither.

r =   d =

40, 43, 46, 49, 52, ...   A   d = 3

−4, 12, −36, 108, −324, ...   G   r = −3

$\frac{-324}{108} =$

$\frac{108}{-36} =$

−29, −34, −39, −44, −49, ...   A   d = −5

$\frac{-36}{12} =$

1, 4, 9, 16, 25, ...   N

1, 5, 25, 125, 625, ...   G   r = 5

625, 125, 25, 5, ...

G   r = $\frac{1}{5}$

A look back . . . . .

Review
Review
Review
Review
Review
Review

Quiz 1

A look ahead . . . . .

Sequences
Exponential functions
Exponent Boot Camp
Systems of Equations

L → exponential equations

Review
QUIZ 2

Before
Starting
Ch. 1

Aim today
_____

Write Sequence Formulas

$t_0 = -3$

Ⓐ

Arithmetic Sequences

$7, 17, 27, 37, \dots$

$t_1 \quad t_2 \quad t_3 \quad t_4$

first term format $\quad t_n = 7 + 10(n-1)$

•

zero term format $\quad t_n = -3 + 10n$

$$t_{70} = 7 + 10(70-1) = 697$$

$$\text{or } t_{70} = -3 + 10(70) = 697$$

t_1

$t(1)$

$t_n =$

$t_n =$

$t3$

$t_3 \quad t_3$

(B) 95 90, 85, 80, 75, ...
       t_1 t_3

$t_n = 90 - 5(n-1)$ ← First term

or $t_n = 95 - 5n$ ← Zero Term

$t_{26} = 95 - 5(26) = -35$

(C)

n	t(n)
1	5.75
2	
3	6.25
4	6.50
5	6.75
⋮	
800	

F.T. $t_n = 5.75 + 0.25(n-1)$

Z.T. $t_n = 5.50 + 0.25(n)$

$t_{800} = 5.75 + .25(800-1)$

$= 205.50$

D **Consider the sequence** $t(n)$ = -4, -1, 2, 5, ...

Write the equation for the sequence, $t(n)$.

1st term $\quad t(n) = -4 + 3(n-1)$

0 term $\quad t(n) = -7 + 3n$

Is it possible for $t(n)$ to equal 418 ?

$$418 = -7 + 3n$$
$$+7 \qquad +7$$

$$425 = 3n$$

$$n = 141.6 \quad \longleftarrow \text{NOT a whole number}$$
$$\text{so}$$

418 is not one of the terms

B.B.

Writing Formulas for

Geometric Sequences

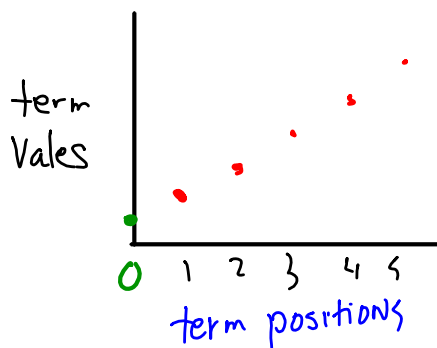
t_1 t_4 t_5

1, 5, 25, 125, 625, ...

$t_0 = \frac{1}{5}$
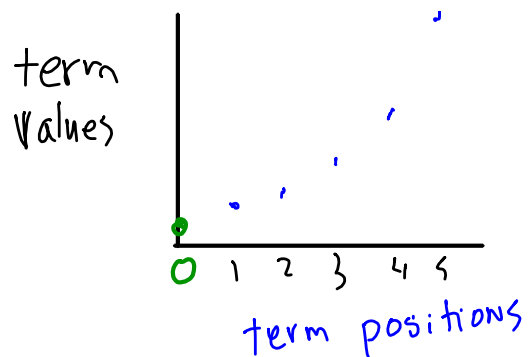
$$t_n = 1 \cdot 5^{n-1} = 1(5)^{n-1}$$

$$t_n = \frac{1}{5}(5)^{n}$$

625, 125, 25, 1, ·•••···

What Arithmetic Sequences Look like

term Vales

0 1 2 3 4 5

term positions

What Geometric Sequences Look like

term Values

0 1 2 3 4 5

term positions

a

Months	Rabbits
0	4
1	12
2	36
3	
4	

first term format $t_n = 12(3)^{n-1}$

zero term format $t_n = 4(3)^n$

$t_{19} = 4(3)^{19}$

1.13×10^{12}

$4,649,045,868$

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b.

Months	Rabbits
0	6
1	
2	24
3	
4	96

What is the growth factor (or multiplier) ?

$6 \cdot r \cdot r = 24$

$6r^2 = 24$

divide

$r^2 = 4$

$r = 2$ multiplier

zero term format $t(n) =$

first term format $t(n) =$

(c). ___ $\dfrac{30}{}$, $\dfrac{36}{}$, ___ , ___ , •• ..

multiplier :

zero term format $t(n) =$

first term format $t(n) =$

<u>**Graphing Calculator tidbits**</u>
- Mode
- Format
- Memory Re-set
- Battery Life / Screen Darkness

A... 23, 25, 37, 51, 68, 92d

Jon Howard

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Assignment is out of your Textbook

(problems are out of Appendix A in the very back of the Book)