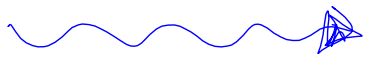
Pick Up

WARM UP

HW QUESTIONS



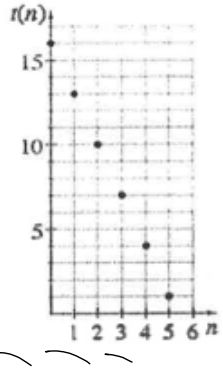
Still to take Quiz 1

John Bates
Chase Blough
Bryson Clark

Per 4

A

#1



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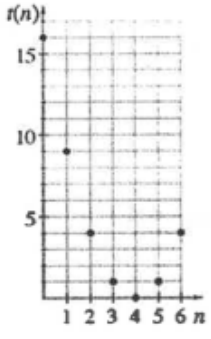
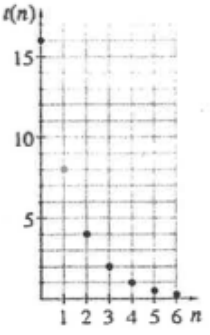


#3



16 13 10 7

t_0

$t_n = 16 - 3(n)$

$t_n = 13 - 3(n-1)$

B Complete the table for the geometric sequence. Then, write sequence formulas in both first term and zero term formats.

1	1
2	7
3	49
4	
5	
6	16807
7	

(b, b, b)

$49 \cdot b \cdot b \cdot b = 16807$

$49\, b^3 = 16807$

$b^3 = \frac{16807}{49}$

$\sqrt[3]{\quad} \qquad \sqrt[3]{\quad}$

$b = \sqrt[3]{\frac{16807}{49}} = 7$

$t_n = 1(7)^{n-1}$

C Simplify

$c^2 \cdot c^3 \cdot c^4 = c^9$

$(2cd^2)(-5c^3d) =$

$2c^1d^2 \cdot -5c^3d^1$

$-10c^4d^3$

D Factor Completely
(which means factor, then factor again)

$2x^2 - 18$

$2(x^2 - 9)$

$2(x+3)(x-3)$

E **A bacteria decays at a rate of 30% per hour. If there are 2000 bacteria to start with:**

a) Write an equation that will represent the number after t ~~years~~ hours

$y = ab^x$

$100\% - 30\%$

70%

$\times .7$ mult

$y = 2000(.7)^t$

b) How much will be left in 8 hours ?

$y = 2000(.7)^8$

$= 115$ bacteria

HW

116 (a)

23,500
Lose 15%

(b)

14,365,112
12% increase

105b $\frac{3(6)}{1}\frac{1}{2}x + \frac{2(6)}{1}\frac{1}{3}x - 7(6) = \frac{(6)}{6}\frac{5}{1}x$

$3x + 2x = 42 = 5x$

$5x - 42 = 5x$
$-5x \qquad -5x$

$-42 = 0$

false ... NO solutions

d) $\frac{x+1}{3} = \frac{x}{2}$

$2(x+1) = 3x$

Today's AIM:

Review exponents

via...

Exponential "Boot Camp"

NOTES

what if exponents are negative ????

What if there were negative exponents?

$m^{-1} = \frac{1}{m^1}$

$\left(\frac{3}{5}\right)^{-1} = \left(\frac{5}{3}\right)^{1} = \frac{5}{3}$

$5^{-1} = \left(\frac{5}{1}\right)^{-1} = \frac{1}{5}$

$\left(\frac{a}{de}\right)^{-1} = \frac{de}{a}$

$4^1 \cdot a^{-1} = \frac{4}{a^1} = \frac{4}{a}$

Manipulating Powers

x^y

a^{x+y}

4) $(ab)^x = a^x b^x$

5) $\left(\frac{a}{b}\right)^x = \frac{a^x}{b^x}$

6) $a^{-x} = \frac{1}{a^x}$

7) $\frac{1}{a^{-x}} = a^x$

$\left(\frac{1}{4}\right)^{-2} = \left(\frac{4}{1}\right)^{2} = (4)^{2} = 16$

$\left(\frac{x}{y}\right)^{-3} = \left(\frac{y}{x}\right)^{3} = \frac{y^3}{x^3}$

$\left(\frac{a}{b}\right)^{m} = \frac{a^m}{b^m}$

$\frac{1}{3^{-1}} = \frac{3^1}{1} = 3$

$\frac{1}{x^{-2}} = x^2$

$\frac{3}{e^{-2}} = 3e^2$

$\frac{n^8}{n^3} n^5 = n^5$

$\frac{n^6}{n^{-2}} = n^6 n^2 = n^8$

$\frac{5x^3}{x^6 x^3} = 5x^3 \quad \frac{5}{x^9}$

You'll be successful with exponents if you can apply the exponent "rules" while having access to the rules

Get in pairs (2)

Each of you should get your own paper.

January 05, 2018

Handout

Manipulating Powers

Exponent LAWS (add to your notes)

1) $(a^x)^y = a^{xy}$	4) $(ab)^x = a^x b^x$	7) $\frac{1}{a^{-x}} = a^x$
2) $a^x \cdot a^y = a^{x+y}$	5) $\left(\frac{a}{b}\right)^x = \frac{a^x}{b^x}$	
3) ~~$\frac{a^x}{a^y} = a^{x-y}$~~	6) $a^{-x} = \frac{1}{a^x}$	

Simplify each expression.

Example: $(x^2)^4 = x^{2 \cdot 4} = x^8$

1. $x^4 \cdot x^2$

use the 2nd law

2. $\frac{x^8}{x^6} = x^2$

3. $(x^2y)^3$ $(x^2)^3 (y)^3 = x^6 y^3$

4. $\left(\frac{x}{y^3}\right)^5$ $\frac{(x)^5}{(y^3)^5} = \frac{x^5}{y^{15}}$

5. $y^{-15} = \frac{1}{y^{15}}$

6. $\frac{1}{x^{-15}} = x^{15}$

7. $\frac{a^6}{a^3}$ $\frac{1}{a^3}$ $= \frac{1}{a^3}$

8. $(2c^2)^3$

$2^3 \quad (c^2)^3$ $\boxed{8c^6}$

9. $\dfrac{n^4 \cdot n^6}{n^8 \cdot n^2} = \dfrac{n^{10}}{n^{10}} = \boxed{1}$

10. $4a^5 \cdot 3a^3$

$\boxed{12a^8}$

$4 \cdot 3 \cdot a^5 \cdot a^3$

11. $\left(\dfrac{v}{3}\right)^4 \cdot \left(\dfrac{5}{v}\right)^2$

$\dfrac{v^4}{81} \cdot \dfrac{25}{v^2} = \dfrac{25v^2}{81}$

$\boxed{\dfrac{25v^2}{81}}$

12. $(x^{-2})^2$

x^{-4}

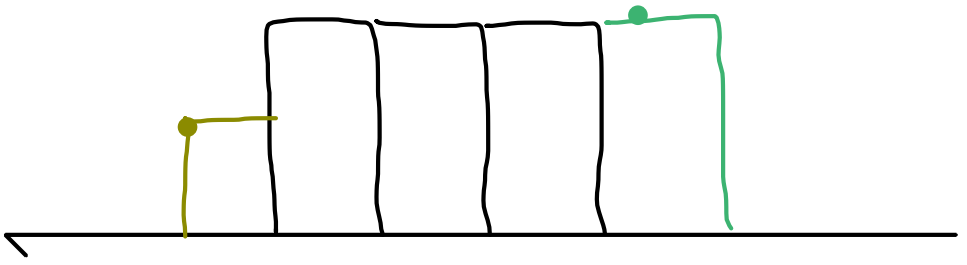
$\boxed{\dfrac{1}{x^4}}$

13. $\left(\dfrac{2}{x}\right)^{-1}$

$\left(\dfrac{x}{2}\right)^1$

$= \dfrac{x}{2}$

Tests



Assignment:

is in **Appendix**

A.....15 , 102

B.....18, 23, 27, 46abc,