Name Key

Review # 13

Jan 2019 Regents Due: Thurs. 6/13/19

Work must be shown for each question in order to receive credit.

1. $\sigma_2 > \sigma_1$

Data set 2 has greater SD than data set 1 ∴ Data set 2 has a larger spread (greater variability) than data set 1. | 2 | 1 |

2. $g(x) = \log_3(x+5)$

in with x → moves opp. direction ∴ 5 left

or plug into y= see which one moved left 5

$y_1 = \log_3 x$ y_2 = answer choices

3. $x^3 + 2x^2 - 9x - 18 = 0$ Grouping

$x^2(x+2) - 9(x+2) = 0$ I

$x(x^2-9) + 2(x^2-9) = 0$ II

$(x^2-9)(x+2) = 0$ Not III

| 1 | 2 |

4. $a_3 = a_1 r^2$

$\frac{64}{121} = \frac{121 r^2}{121}$

$\sqrt{\frac{64}{121}} = \sqrt{r^2}$

$\pm \frac{8}{11} = r$

$a_5 = a_1 r^4$

$= 121\left(\pm\frac{8}{11}\right)^4$

$= 34$

5. $5x^2 - 2x + 13 = 9$ or STORE

$5x^2 - 2x + 4 = 0$

$x = \frac{2 \pm \sqrt{-76}}{2(5)}$

$b^2 - 4ac$

$= 4 - 4(5)(4)$

$= -76$

$= \frac{2 \pm i\sqrt{4}\sqrt{19}}{10} = \frac{1 \pm i\sqrt{19}}{5} = \frac{1}{5} \pm \frac{i\sqrt{19}}{5}$

| 2 | 3 |

6. $y = 2000(1.04)^t$

yearly growth constant still has to be 1.04

1.) $1.04^{12} = 1.005$ ×

2.) $1.01^1 = 1.01$ ×

3.) $1.0032737^{12} = 1.04$ ✓

4.) $1.0032737^1 = 1.003$ ×

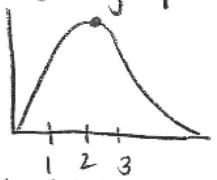
7. Time of next high tide would be the midpt. of consecutive low tides.

8. Look at Table

x	y	
0	0	incr.
1	255	
2	344.4	
3	306.9	decr.
4	193.2	
5	66	
6	0	

| 1 | 1 |

or look at graph:



Window:

Xmin 0 Ymin 0

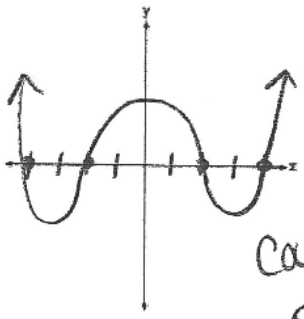
Xmax 6 Ymax 350

Xscl 1 Yscl 10

25. $\frac{\sqrt[3]{x^2y^5}}{\sqrt[4]{x^3y^4}} = \frac{x^{2/3}y^{5/3}}{x^{3/4}y^1}$ > subtr. expon.

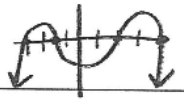
$= x^{-1/12}y^{2/3}$

26.



Quartic = 4 zeros ∴ crosses through each zero

Could also be:



27. $(a+b)^3 = a^3+b^3$

$(a+b)(a+b)(a+b) = a^3+b^3$

$(a^2+2ab+b^2)(a+b) = a^3+b^3$

$a^3+a^2b+2a^2b+2ab^2+ab^2+b^3 = a^3+b^3$

$a^3+3a^2b+3ab^2+b^3 \neq a^3+b^3$

NO, it doesn't always work.

33. ① $a+4b+6c=23$

② $a+2b+c=2$

③ $-a+6b+2c=14$

$\begin{cases} a=-3 \\ b=\frac{1}{2} \\ c=4 \end{cases}$

1+3: $a+4b+6c=23$ / $-a+6b+2c=14$ → ④ $10b+8c=37$

2+3: $a+2b+c=2$ / $-a+6b+2c=14$ → ⑤ $8b+3c=16$

1+5: $-3(10b+8c=37) \rightarrow -30b-24c=-111$

$8(8b+3c=16) \rightarrow 64b+24c=128$

$34b=17$

$b=\frac{1}{2}$

⑤ $8b+3c=16$

$8(\frac{1}{2})+3c=16$

$4+3c=16$

$3c=12$

$c=4$

② $a+2b+c=2$

$a+2(\frac{1}{2})+4=2$

$a+1+4=2$

$a+5=2$

$a=-3$

34.

$$x+2 \overline{)x^4+2x^3+4x-10}$$

x^3+4

$-x^4-2x^3$

$4x-10$

$-4x-8$

-18

$x^3+4-\frac{18}{x+2}$

b(x) is not a factor of a(x) because there was a remainder of -18.