SPIRAL REVIEW #8.2 Key EXPONENTS & LOGARITHMS

(4R)

1. Pedro and Bobby each own an ant farm. Pedro starts with 100 ants and says his farm is growing exponentially at a rate of 15% per month. Bobby starts with 350 ants and says his farm is steadily decreasing by 5 ants per month. Assuming both boys are accurate in describing the population of their ant farms, after how many months will they both have approximately the same number of ants?

1) 7
2) 8
3) 13
4) 36

Pedro: $100(1+.15)^x$ > Graph

Bobby: $350-5x$

2. Solve for x: $log_2 8 = x$

$2^x = 8$
$2^x = 2^3$
$x=3$

OR Type $\log_2 8$ in your calculator

3. Determine your answer and round your answer to the nearest thousandth: $log_{10} 8$

.90308... ≈ .903

4. According to a pricing website, Indroid phones lose 58% of their cash value over 1.5 years. Which expression can be used to estimate the value of a \$300 Indroid phone in 1.5 years?

1) $300e^{-0.87}$
2) $300e^{-0.63}$
3) $300e^{-0.58}$
4) $300e^{-0.42}$

$300e^{-.58(1.5)}$
$300e^{-.87}$

5. To the *nearest tenth*, the value of x that satisfies $2^x = -2x + 11$ is

1) 2.5
2) 2.6
3) 5.8
4) 5.9

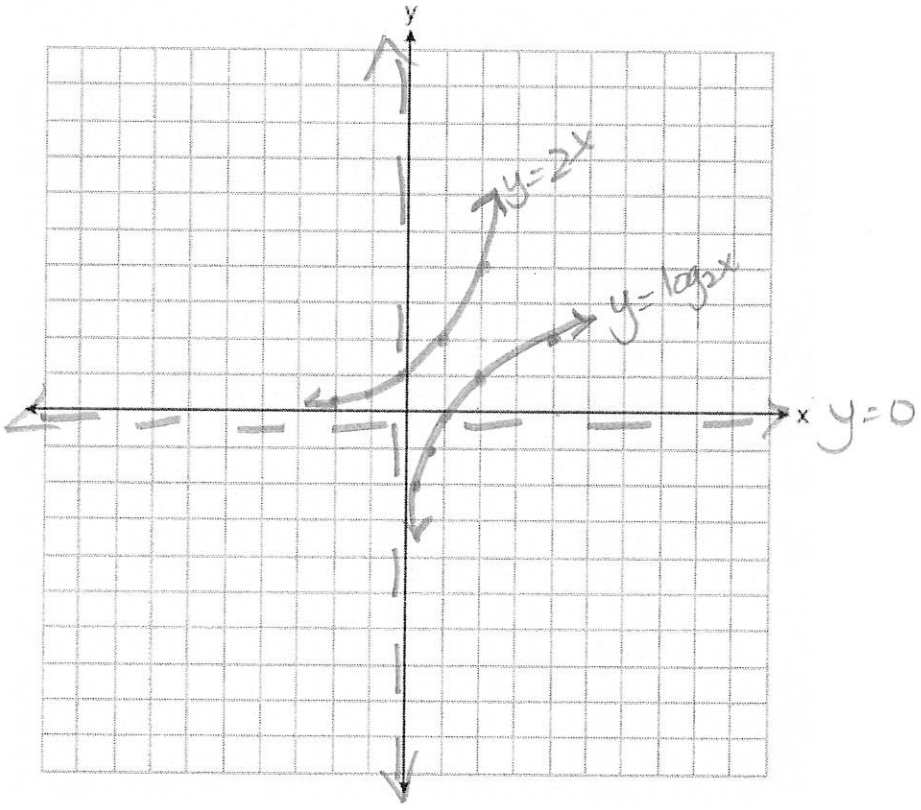
↳ Intersect on graph

(2.55..., 5.88...)

6. For $f(x) = 2^x$,

   a. Sketch $f(x)$ on the grid below.

   b. Sketch $f^{-1}(x)$ on the same grid below **and label it** *(don't forget your asymptote!)*



x	y
-2	$\frac{1}{4}$
-1	$\frac{1}{2}$
0	1
1	2
2	4

$y = 2^x$

$x = 2^y$

$y = \log_2 x$

x	y
$\frac{1}{4}$	-2
$\frac{1}{2}$	-1
1	0
2	1
4	2