Date:		—_ п.б. ——
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Show all of your work. Complete this test in pencil. Make sure you write neatly and circle your answers.



1. Simplify. Your answer should contain only positive exponents.

$$\frac{a^4b \cdot a^4b^3}{a^3b^7} = \frac{a^8b^4}{a^3b^7} = \frac{a^5b^4}{b^3}$$

$$(2p^2)^3 \cdot 2p^4$$
 $8p^6 \cdot 2p^4 = 16p^2 10$



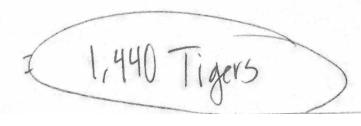
The population of Bengal Tigers decreases at a rate of 7% a year. There were 3,200 Bengal tigers in 2005.

a. Write a function that models this scenario. (Your function should have a t in it.)

$$F(t) = 3,200(1-.07)^{t}$$

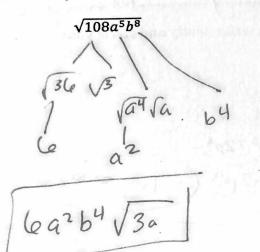
= 3,200(.93)^t

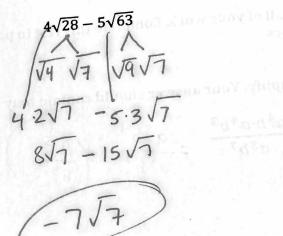
b. How many tigers are left now?



(6) 3. 5

3. Simplify. Make sure all of your radicals are in simplest to any further.

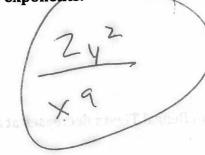




4

4. Simplify. Your answer should contain only positive exponents.

$$\frac{2xy^9 \cdot x^{-4}y^{-1}}{(x^2y^2)^3} = \frac{2 \times \sqrt{3}y^8}{\sqrt{y^6}}$$



is. How computingers are led newl

5. Steven has s

Steven has \$2,500 to invest. His bank gives him two options. How much money will he have in 5 years for each of the options?

Option A: A savings account that earns 11% interest a year.

Option B: A savings bond that earns 2% interest per month.

Which option should Steven choose? Explain your reasoning.

Simplify. Make sure all of your radicals are in simplest form and radicals cannot be combined

any further.

$$5\sqrt{2} * 3\sqrt{10} = 15\sqrt{20}$$

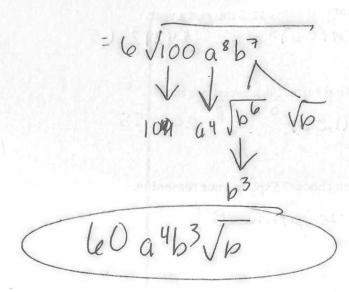
$$\sqrt{4}\sqrt{5}$$

$$\frac{4\sqrt{16}}{2\sqrt{12}} = 2$$

$$\frac{2}{\sqrt{4}} = \frac{1}{\sqrt{3}} = \frac{1}{\sqrt{3}}$$

4

 $3\sqrt{20a^7b^2} * 2\sqrt{5ab^5}$



8. A certain bacteria multiplies at a rate of 19% per day. A sample of the bacteria contained 200 specimens on day zero.

Which of the following would you use to determine how many bacteria there would be in 3 weeks?

i.
$$f(t) = 200(1 - 0.19)^3$$

ii.
$$f(t) = 200(1 + 0.19)^3$$

iii.
$$f(t) = 200(1.19)^{21}$$

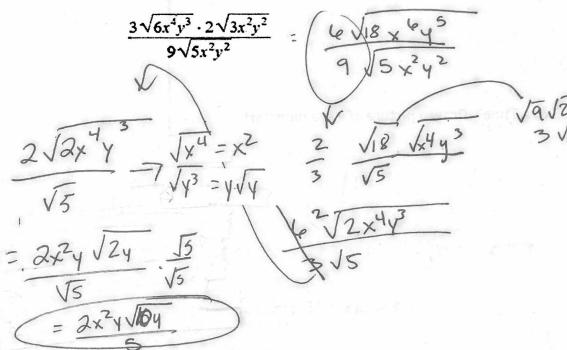
iv.
$$f(t) = 200(0.81)^{21}$$

Explain your choice:

9.	1 111 111	the following	table:

Function $f(t) = 5000 co. 13$	Growth or Decay	Initial Amount	Rate (as a percent)	Time
$f(t) = 5000(0.3)^{12}$	D	5000	70%	12
$f(t) = 2(1.48)^{100}$	G	2	4870	100
$f(t) = 1.36(104)^5$	D	1.36.	4%	5

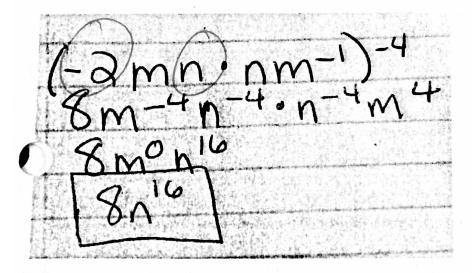
4 10. Simplify:



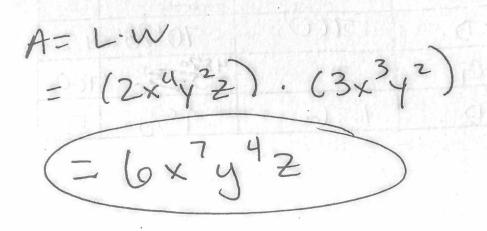
11. Charlotte was working on simplifying the following problem:

$$(-2mn \cdot nm^{-1})^{-4}$$

She made a few mistakes in her work. Describe **one** of her mistakes and write the exponent rule that was not correctly followed.



12. The length of a rectangle can be represented as $2x^4y^2z$ and the width is $3x^3y^2$. What is the area of the rectangle?



extra Time? Draw a picture of a sea monster!

11)