Jakarta International School

8th Grade – AG1

Practice Test -Green

Exponents, Radicals, and the Pythagorean Theorem

Name: _____

Date: _____

Score: ___/50

Goal 7: Apply Exponents, Radicals, and the Pythagorean Theorem

****2 Points Per Problem Unless Stated Otherwise****

1. Solve for x

A. $3^x = 9^2 \cdot 3 \cdot 27^3$	B. $16 = 2^{3x-2}$
C. $p^5\left(\frac{1}{p^2}\right) = p^x$	

6 points.

2. One circular ice skating stadium for children has a radius of x^2 and the other for adults has a radius which is triple the first. Find the ratio of the area of the larger stadium to the area of the smaller stadium.

2 points

Sub total 8 points

3. Simplify or evaluate the following expressions. Write answers in simplest form.

A. $10^{-2}.10^{0}$	B. $\left[(-2)^{3}\right]^{2}$
C. $(3x)^{-2}(-3x)$	D. $(5x)^{0}\,y^{-2}$

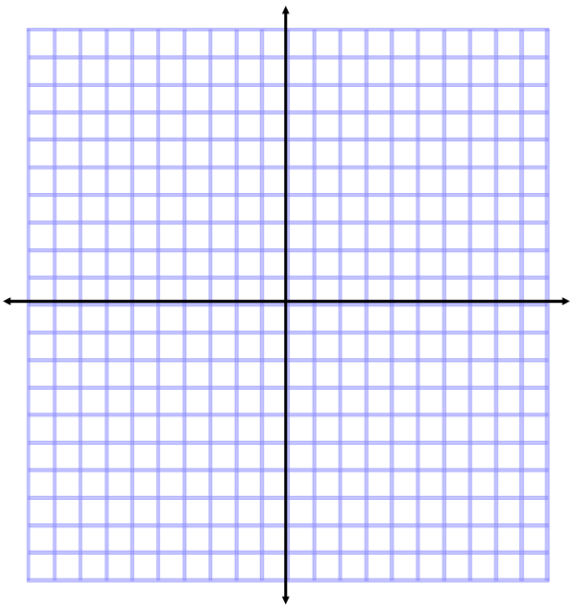
8 points

4. Make a table of values for the exponential function $y=\left(\frac{1}{3}\right)^{x}$

- Show how you evaluated at least one input output pair in your table.

x					
$y=\left(\frac{1}{3}\right)^{x}$					

- Use your table to graph this function.



3 points

Sub total 11 points

5. Simplify the following expressions. Use only positive exponents in your answer.

A. $\frac{5x^2y}{3xy^2} \bullet \frac{6x^4y^2}{x^2y^2}$	B. $x^{-8} \cdot x^{10} \left(\frac{y^3}{y^5} \right)^{-2}$

4 points

6. The human body has 1×10^{12} cells. There are 3×10^{10} red blood cells. Find the ratio of red blood cells to the total number of cells and write the number in scientific notation.

2 points

Sub total 6 points

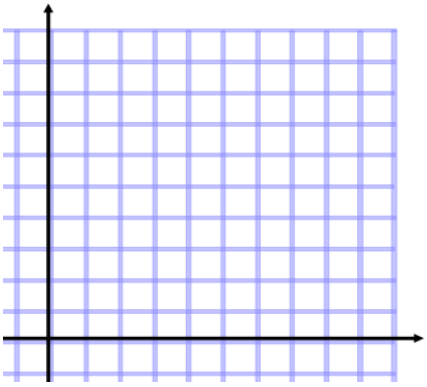
7. Write the number in decimal form.

A. 0.759×10^{6}	B. 52.4×10^{-4}

4 points

8. A population of 40 pheasants is released in a wild life preserve. The population doubles each year. What is the population after 4 years?

- Write an exponential growth model
- Evaluate the pheasant population after 4 years?
- Graph the population growth over four years.



3 points

9. Write an exponential growth model for the profit.

A business has a $ 5000 profit in 1990. Then this profit increased by 15% per year for the next 10 years.

2 points

Sub total 9 points

10. Evaluate or simplify the following expressions without using a calculator

A. $\sqrt{432}$	Working	B. $\sqrt{0.0025x^4y^6z^5}$	Working
C. $\left(-2\sqrt{7}\right)^2$		D. $\frac{12}{3\sqrt{15}}$	

Sub total 8 points

13. Solve the equations. Write the solutions(s) as simplified as possible.

A.	B.
$3a^2 = 147$	$6x^2 - 54 = 0$

4 points

14. A ladder is 5m long. Its foot is on a flat driveway 2m from the base of a vertical wall. How far up the wall will the top of the ladder reach?

- Draw a sketch of the ladder leaning against the wall
- Using the 4 step problem solving process find out how far up the wall the ladder will reach
- Give your answer in its simplest form.

4 points

Sub total 8 points