HSPE Practice Test 2A Algebra Name _____Per_____Teacher_____

Please complete the following problems neatly on your own paper. Show all your work and circle your answers. Transfer your answers for each question to the answer sheet provided. You will turn in both the answer sheet and your work.

1. Chris and Kim worked together to paint skateboards. Kim painted 10 more than twice the number that Chris painted. Together they painted 100 skateboards. Which of these equations can be used to find the number of skateboards (*x*) that Chris painted alone?

- ○ A. $2x + 10 = 90$
- ○ B. $3x + 10 = 90$
- ○ C. $2x + 10 = 100$
- ○ D. $3x + 10 = 100$

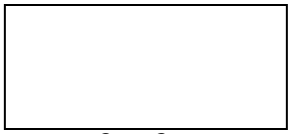
2. The local newspaper is printing tonight's edition. One machine can print 600 papers an hour. Two hours later, a second machine starts that can also print 800 papers each hour. Together they must print 15,000 copies.

a. Write an equation that would allow the newspaper to determine how many hours it would take them to print 15,000 copies of the paper?
b. How many hours will it take to print all 15,000 copies?

Equation _____

Hours _____

3. Jack is building a rectangular garden as shown below. The area of the rectangle must be less than 65 sq. ft. Find values of *x* that will make the area less than 65.



- ○ A. $x \geq 5$
- ○ B. $x \leq 5$
- ○ C. $x > 5$
- ○ D. $x < 5$

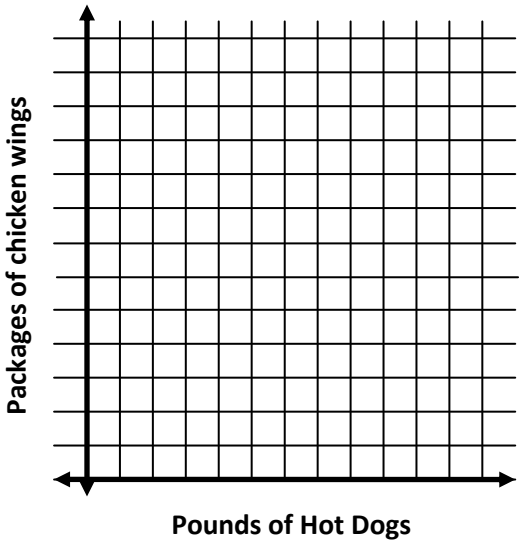
4. Carlos is buying food for a party. A package of chicken wings cost $7. Hot dogs cost $4 per pound. He must spend less than $42. He knows he will buy at least 5 pounds of hot dogs.

- Write an inequality to represent the amount of money that Carlos will spend.
- Write an inequality to represent the number of pounds of hot dogs he will buy.
- Graph both inequalities on the graph at the right.
- Give two possible solutions to this problem.

Inequality 1: _____

Inequality 2: _____

Two possible solutions: _____



5. Eric has a certain bacteria in his lab. He places 5 of those bacteria in a beaker. The number of bacteria triples every 12 hours.

- How many bacteria will be in the bottle after 48 hours?
- About how long will it take to have 500 bacteria in the bottle?

Bacteria after 48 hours_____

About how long? _____

6. The distance from planets to the sun is given in the table below. Arrange the planets in order from greatest distance to least distance from the sun.

Planet	Dist. From Sun in Miles
W	1.427×10^9
X	1.496×10^8
Y	2.279×10^8
Z	6.720×10^7

- ○ A. W, X, Y, Z
- ○ B. W, Y, X, Z
- ○ C. Z, Y, X, W
- ○ D. Z, X, Y, W

7. For what positive values of a is the following expression negative?

$$(a^2 - a)$$

8. Simplify $(3x^2 y^{-5})(-2xy^3)^2$

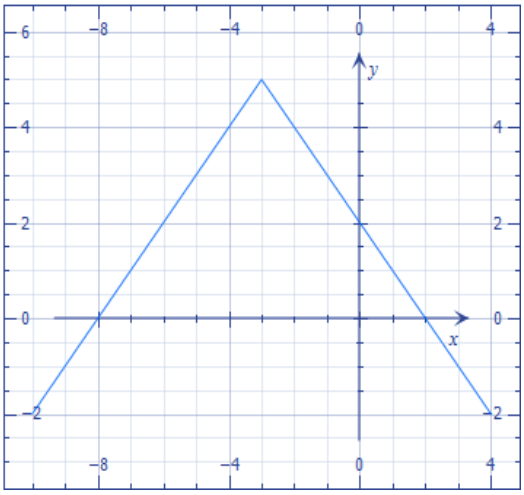
9. Simplify the expression: $3\sqrt{24} \cdot 4\sqrt{8}$

10. Let $p = -2$, $q = 5$ and $r = ½$. Find the value of $\left(\frac{pr - pq^2}{q - p} \right)^2$

11. Which of the following expressions represents the domain of $f(x) = \sqrt{3x - 6}$?

- ○ A. $x \geq 0$
- ○ B. $x \leq 2$
- ○ C. $x \geq 2$
- ○ D. $x \geq \frac{1}{2}$

12.



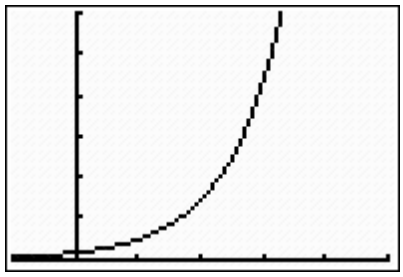
The graph of $f(x) = -|x+3|+5$ is shown at the right.

Which of the following statements is NOT true?

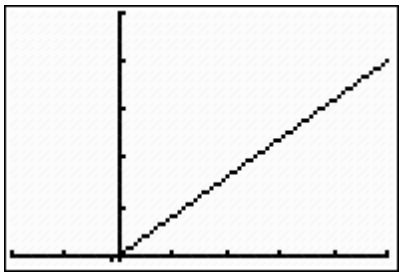
- ○ A. the domain of $f(x)$ is $-\infty < x < \infty$
- ○ B. the range of $f(x)$ is $-\infty < x < \infty$
- ○ C. The roots of $f(x)$ are (-8,0) and (2,0)
- ○ D. The y-intercept of $f(x)$ is (0,2).

13. A scientist was observing a circular oil spill spreading across the water. At his first observation, the diameter of the circle of oil was 8 feet. The diameter of the spill tripled every day. Which of the graphs below could model this problem?

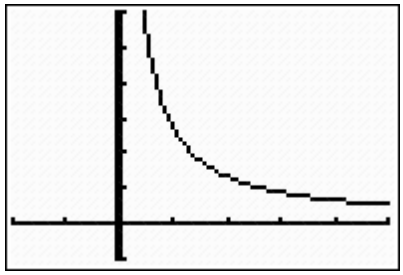
○A.



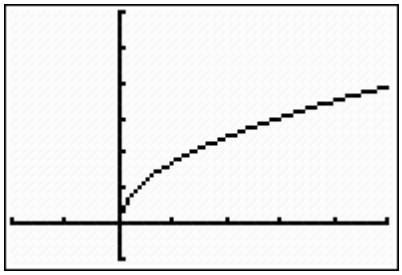
○B.



○C



○D.



14. Find $f(2)$ for the function $f(x) = \dfrac{3x}{x^2 - 1}$

15. Find x when $g(x) = 4$ for $g(x) = \dfrac{9}{10 - x}$.

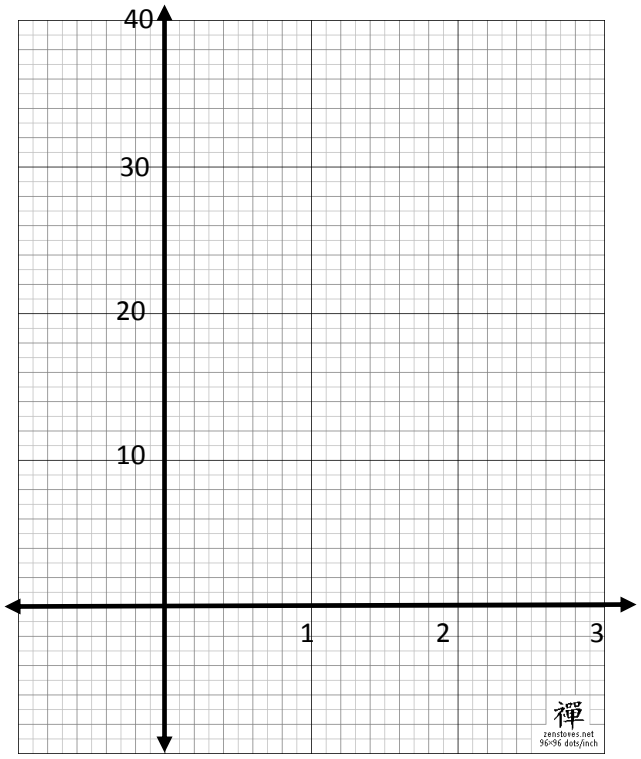
16. Look at the table at the right.

x	*y*
0	3
1	6
2	*r*

What value of *r* will make this table a representation of an exponential function?

- ○ A. 9
- ○ B. 10
- ○ C. 12
- ○ D. 18

17. Graph and label the functions $f(x) = 8\left(\frac{1}{2}\right)^x$ and $g(x) = 8(2)^x$ on the axes below.



18. Maylene deposited $2000 in a bank account that pays 4% per year, compounded twice a year. How much money will be in the account at the end of 5 years if she does not deposit any additional money and she does not take any out?

- ○ A. $2200.00
- ○ B. $2400.00
- ○ C. $2437.99
- ○ D. $2960.49

19. A certain sequence is listed here. 4, 7, 10, 13…
Write a recursive rule to describe this sequence.

20. Solve this equation for *h*: $A = \frac{h}{2}(b_1 + b_2)$