JCPS

JEFFERSON COUNTY PUBLIC SCHOOLS DIGITAL: NTI

Supplemental Practice for

ALGEBRA 2 & SENIOR MATH

Packet #1

The material in this packet is to be used as extra practice for students who would like to extend their learning once they have completed the Choice Boards for their grade level.

The expected time frame for this practice is approximately 2 weeks.

Quadratic Equations Practice

Name:_____ Date:_____

1. The table below contains single equations in a single variable. Decide whether there are no real solutions, exactly 1 real solution, or exactly 2 real solutions. Check the appropriate box for each row.

		No Real Solutions	**Exactly 1 Real Solution**	**Exactly 2 Real Solutions**
a.	$(a+5)^2 = 25$			
b.	$(n-5)^2 = 25$			
c.	$(z+5)^2 = -25$			
d.	$(x-5)^2 = 0$			
e.	$16-(l+5)^2 = 25$			
f.	$(f+1)^2 = (f+2)^2$			
g.	$5b^2 = 5b^2 + 1$			

2. Solve each equation.

a. $13g = \frac{1}{2}g^2 + 12\frac{1}{2}$

b. $7h^2 + 6 + 2h = h^2 + 4h + 26 + 5h$

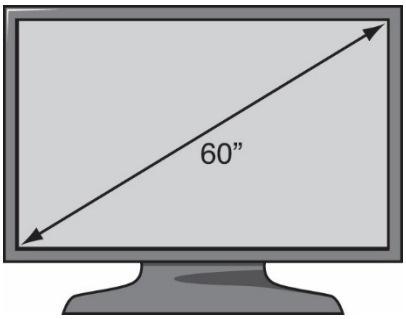
c. $(1.6J - 0.2)^2 = 1$	d. $42K + 112 = 7K^2$

3. Rewrite the equation $4x^2 + 16x = 65$ in the form $(x + p)^2 = q$

$(x +$ _____$)^2 =$ _____

4. The product of two consecutive positive integers is 380. What are the two integers? Show your work.

5. TV screens are measured on the diagonal.



The 60” TV shown above has a width to height ratio of 16 to 9.

a. What is the area, in square inches, of this TV screen? Show your work.

b. The width to height ratio of 16:9 is common for TVs today. Write a function *A* that gives the screen area *A(d)*, in square inches, when the length of the diagonal is *d inches* .

Functions Practice

Name:_____ Date:_____

1. The following rules define two functions. The inputs for the functions are the set of positive integers.

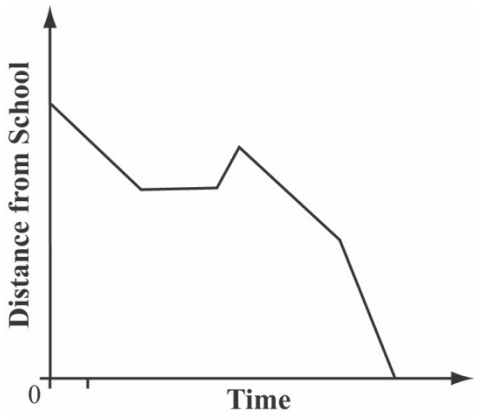
Rule 1: The output is the square of the input.
Rule 2: The output is 90 greater than the input.

(a) What is a positive integer input that gives the same output for both functions?

(b) Do Rule 1 and Rule 2 define the same function? Explain your reasoning.

2. The graph below shows Jonas' commute to school this morning.

Based on the graph, describe what is happening as carefully as you can. You do not need to measure anything accurately.



3. A machine produces granola bars from long strips of granola. The function below shows that *L* meters of granola produces *B* granola bars.

$$B = 25(\frac{L}{10} + \frac{3}{4})$$

How many granola bars are produced from 2.5 meters of granola?

4. Mrs. Garner opens a factory that produces cans of soda 24 hours a day. There are three work shifts. Each shift produces cans of soda at different rates.

Shift	Rate of Soda Production
8am – 4pm	Normal production rate
4pm – 12am	$\frac{1}{2}$ of normal production rate
12am – 8am	$\frac{1}{4}$ of normal production rate

She needs to determine what the normal production rate must be to produce 200,000 cans of soda each day.

How many cans of soda must the factory produce from 8am to 9am to produce 200,000 cans each day? Explain your answer using numbers, words, and/or pictures.

5. Maureen and Shannon decide to rent paddleboards while on vacation. Shop A rents paddleboards for $7.75 per hour. Shop B's prices are shown on the poster to the right.

Which shop offers a cheaper hourly rental rate? Explain your answer using numbers, words and/or pictures.

Hours	Price
0.5	$3.80
4	$30.40
7	$53.20
8	$60.80

6. The graph of a linear function includes the points (6, 3.5) and (1, –2.5).

a. The *x*-coordinate is the input and the *y*-coordinate is the output. Write an equation that gives *y* in terms of *x*.

b. Find another point on the graph with an *x*-coordinate that has a negative value.