

Midterm Review

Appetizers – The Real Number

<p>1) Identify:</p> <p>a) domain of $\{(7, 2) (9,3) (12, -1)\}$</p> <p>b) range of $\{(3, 6) (5,12) (7, 24)\}$</p>	<p>(2)</p> <p>a) Is the sum of $\frac{3}{8}$ and $-\sqrt[3]{64}$ a rational number? Justify your answer.</p> <p>b) Is the product of $\sqrt{12}$ and $\sqrt{27}$ an integer? Justify your answer.</p>
<p>(3) The number $\frac{2}{7}$ belongs to which of these sets? natural numbers, whole numbers, integers, rational numbers, irrational numbers, real numbers Name all that apply.</p>	<p>(4) Rewrite the following number in simplest radical form.</p> $\sqrt{92}$
<p>(5) Determine if each statement is true or false. <u>Write your chart first to refer to:</u> $R + R = R$ etc.</p> <p>a) The product of two rational numbers is always rational.</p> <p>b) The sum of two rational numbers is always irrational.</p> <p>c) The product of two irrational numbers is always irrational.</p> <p>d) The product of a rational number and irrational number is always irrational.</p> <p>e) The sum of a rational and irrational number is always irrational.</p> <p>f) The square root of a rational number is always rational.</p>	

Midterm Review

Small Plates – Polynomial Expressions

A) The amount of water in a pool is modeled by the equation $g = 500 + 35m$ where m is the number of minutes that the pool is being filled. Which set of numbers best describes the range?

- a) Integers
- b) Whole numbers
- c) Positive rational numbers
- d) Natural Numbers

B) Revenue from a fundraiser is $7x^2 - 5x + 2$. The expenses in running the fundraiser was $6x^2 - 4$. What was the profit?

C) A fundraiser is held for Spotlight. Ads to be printed are \$45 for each page and money is spent to create flyers to ask people for ads. The total amount that Spotlight would receive is modeled by $f = 45m - 73$. Describe what each part of the equation represents:

f
45
m
-73
45m

D) Simplify the polynomial expression. Represent your final answer in standard form. What is the leading coefficient?

$$3(x + 4)^2 - (7x - 3)$$

E) Represent the sum of $5x - 9$ and $6x^2 + 4x - 3$ then multiply that by $\frac{1}{3}x + 5$ and write as a simplified polynomial expression written in standard form.

F) The measure of the base of a triangle is represented by $8x - 20$ and its height is represented by $10x$. Represent the area of the triangle as a polynomial expression in simplest standard form.

$$A = \frac{1}{2}bh$$

Midterm Review

Dinner – Equations and Inequalities

For #'s 1 – 4, solve each equation to find the value of x.

(1) $8x - (3x + 4) = 6x - x + 7$

(2) $\frac{1}{2}(4x - 2) = 15$

(3) The function $y = 7x - 1$ is defined by the domain $-2 < x < 5$. What is its range?

(4) $\frac{39}{4} - \frac{3}{4} = 9$

(5) Solve for q in terms of m and r .

$$M = \frac{1}{3}q + r$$

6) What is the largest integral value that will make the inequality statement true?

$$6x - 3 + 11 > \frac{1}{2}(16x + 4)$$

(7) The following literal equation was solved for m . Name the property of equality used in each step.

$$xm + r = cm$$

$$r = cm - xm \quad \underline{\hspace{4cm}}$$

$$r = m(c - x) \text{ Factor}$$

$$\frac{r}{c-x} = m \quad \underline{\hspace{4cm}}$$

8)

For each compound inequality below, **solve** the inequality and represent the solution set **graphically** and using **interval notation**.

a. $2x + 5 > 11$ and $-3x + 3 \geq -27$

b. $4x - 1 < 7$ or $2x > 16$

9) write the symbol for each of the following: at least _____ minimum _____ no more than _____

Midterm Test Review

Intermezzo – Applications with Equations

(1) Write the equation to represent the given solution (in one variable)

Tara runs 3 miles less than twice the amount of miles, m , that Aaron does.

If together they ran 18 miles, how many miles did Tara run?

(2) Zach has 20 coins, nickels and quarters. If he has q = quarters, write the equation to find out how many coins he has of each when his total amount is \$2.00.

(3)

m	12	15	17	23	45	51	63	64	72
f	1.4	1.6	2.3	2.8	5.7	7.4	8.1	8.3	8.9

The table of values shows the number of minutes, m , it takes a person to dig and how many feet³ of dirt, f , is put in the truck to cart it away. Find the *average rate of change* between 17 and 45 minutes, to the nearest tenth.

(4) Spotlight is selling trail mix for a fundraiser. They need to buy popcorn, M&M's and Skittles. If they buy 2 parts popcorn, 1 part M&M's, and 3 parts Skittles and spend \$148 total on the items, how many pounds of Skittles did they buy?

(5)

Michael has \$27 saved and will earn \$15 a week running errands. Tyler has \$3 now and will earn \$21 a week as an assistant coach. They agree that they will visit an amusement park when they each have the same amount of money saved. In how many weeks will they go? How much money will they have? Write and solve a system of equations to find the answers.

6) The equation $a = 3e + 11$ represents the number of commands my dog Nala will know over the course of months of training. Identify and explain each of the following:

slope _____

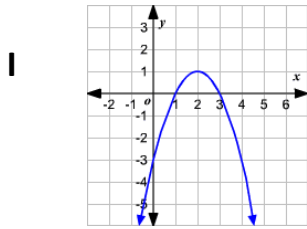
y-intercept _____

variables _____

Midterm Test Review

Sure to Please Extras - Mixed Review

Which representations of relations are functions?



II

x	y
2	6
3	-12
4	7
5	5
2	7

III $y = 2x + 1$

IV $\{(1,1), (2,1), (3,2), (4,3), (5,5), (6,18), (1,13)\}$

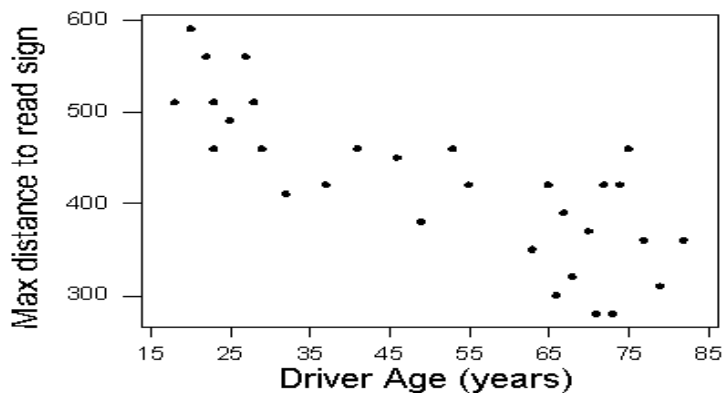
(1) I and III

(2) II and IV

(3) I only

(4) III only

- 2) Describe the type of correlation (positive, negative or no correlation) and determine if it is causal.
- The number of pages left in a notebook compared to the pages of notes written.
 - The number of treats a dog gets and the number of walks it goes on.
 - Give your example of a positive correlation that is not causal



Would a trend line that helps predict the distance needed for a 60 year-old be an interpolation or extrapolation?
 Would it have exact data or approximate data?

The following table shows the number of goals scored and the number of wins for some National Hockey League (NHL) teams for the 2009-2010 season.

Goals Scored	318	222	235	257	214	216	219	208	225	222
Wins	54	48	45	47	27	32	38	32	40	38

4.

- a. What is the equation of the line of best fit? b. What is the correlation coefficient? What does it suggest? (if necessary, round answers to the nearest tenth)

5. Arrange the correlation coefficients in order from least to greatest

-0.54 0.17 -0.93 0.78 -0.67 -1