Name: _____

CCSD Math Summer Calendar

Entering Foundations/Intermediate/Algebra 1

-Complete the Math Calendar and return to your math teacher on the first day of school.
-You may finish these at your own pace. Each week has a topic with a helpful, optional tutorial video link.
-Show ALL WORK on a separate sheet of paper with problem numbers CLEARLY labeled

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Week of June 1st: Rational and Irrational Numbers

Video Link: https://youtu.be/RPVu3pYDUFI

Problem 1a: Which number is rational?

A. 0.777 B. $\sqrt{5}$ C. 0.36458121… D.π

Problem 2a: Which number is irrational?

A. 27 B. $\sqrt{9}$ C. $\sqrt{12}$ D. 3.75

Problem 3a: The sum of a rational number and irrational number is:

A. a rational number

B. an irrational number

C. undefined

D. cannot be determined without more information

Problem 4a: The product of two rational numbers is:

A. a rational number

B. an irrational number

C. undefined

D. cannot be determined without more information

Problem 5a: The product of a nonzero rational number and an irrational number:

A. a rational number

B. an irrational number

C. undefined

D. cannot be determined without more information

Week of June 8th: Simplifying Exponential Expressions

Video Link: https://www.youtube.com/watch?v=Zt2fdy3zrZU

Website with examples:

https://www.mesacc.edu/~scotz47781/mat120/notes/exponents/review/review.html
https://www.mesacc.edu/~scotz47781/mat120/notes/exponents/review/review_practice.html

Problem 1b: Which expression is equivalent to $(xy{-}6)^2$ for all values of x and y where the expression is defined?

a) $xy{-}^{36}$

b) xy^{36}

c) x^2y^{-12}

d) x^2y^{12}

Problem 2b: Which expression is equivalent to $\frac{45m^{-6}p^2v^{12}}{15m^{-2}p^8v^{-4}}$ for all values of x and y where the expression is defined?

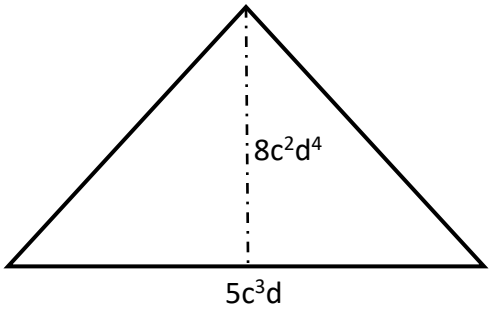
a) $\frac{3v^8}{m^8p^6}$

b) $\frac{3v^{16}}{m^4p^6}$

c) $\frac{30m^3}{p^4v^3}$

d) $\frac{30v^3}{m^3p^4}$

Problem 3b: Express the area of the triangle below as a monomial. $\left(Area = \frac{1}{2}bh\right)$



Problem 4b: The area of a rectangle is $54x^9y^8$ square yards. If the length of the rectangle is $6x^3y^4$ yards, which expression represents the width of the rectangle in yards?

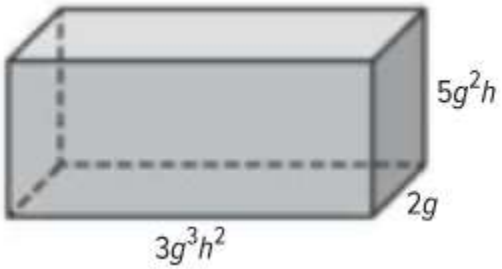
a) $9x^3y^2$

b) $48x^6y^4$

c) $9x^6y^4$

d) $60x^{12}y^{12}$

Problem 5b: Multi-Step: Consider the rectangular prism shown.



A. Which expression represents the area of the face with a length of $3g^3h^2$ and a width of $5g^2h$?

   a. $15g^5h^2$

   b. $15g^5h^3$

   c. $15g^6h^2$

   d. $15g^9h^2$

B. What is the volume of the prism?

Week of June 15th: Completing the Square

Video Links:
https://www.youtube.com/watch?v=IEGqjwu4XWU
Watch the Video (start at 15:36) https://www.youtube.com/watch?v=C206SNAXDGE

Problem 1c: Solve the equation by completing the square:

$x^2 + 18x + 73 = 9$

Problem 2c: Solve the equation by completing the square:

$v^2 - 16v + 23 = -7$

Problem 3c: Solve the equation by completing the square:

$x^2 + 8x - 67 = -8$

Problem 4c: Solve the equation by completing the square:

$2v^2 - 12v + 20 = 5$

Problem 5c: Solve the equation by completing the square:

$8k^2 - 16k - 87 = 5$

Week of June 22nd: Solving Equations

Video Link:

Problem 1d:

$6x+3=8x-5$

Problem 2d:

$2.38x+6.8=3.9x-3.4$

Problem 3d:

$-4+2(x-1)=2(x-3)$

Problem 4d:

$7x-29-21x=3-(12+2x)$

Problem 5d:

$\frac{1}{4}(4x+16)=3+2(2-x)$

Week of June 29th: Linear Inequalities

Video Links:

https://www.youtube.com/watch?v=xOxvyeSl0uA&feature=youtu.be

https://www.youtube.com/watch?v=roHvNNFXr4k&feature=youtu.be

https://www.youtube.com/watch?v=j8Kzrp3QevE&feature=youtu.be

Problem 1e: Translate the following verbal expression into an algebraic inequality: $14 fewer than twice the original price of a hat is no more than $35

Problem 2e: Solve the following inequality: $-3(x+5)<9$

Problem 3e: Determine the correct inequality symbol (<,>,≤,≥) that fits the following characteristics: closed dot and shaded to the right.

Problem 4e: Identify all synonyms for the "≥" symbol

a. Minimum	e. Maximum	i. Greater than
b. No more than	f. Greater than or equal to	j. All of that and more
c. Less than	g. Exceeds	k. Not as much as
d. No fewer than	h. Less than or equal to	l. Least amount possible

Problem 5e: You earn $7.50 per hour and need to earn at least $500. You have already saved $35. Write and solve an inequality to find how many hours you must work to reach your goal.

Week of July 6th:

Problem 1f: What is the value of the expression when x = –6 and y = 3?

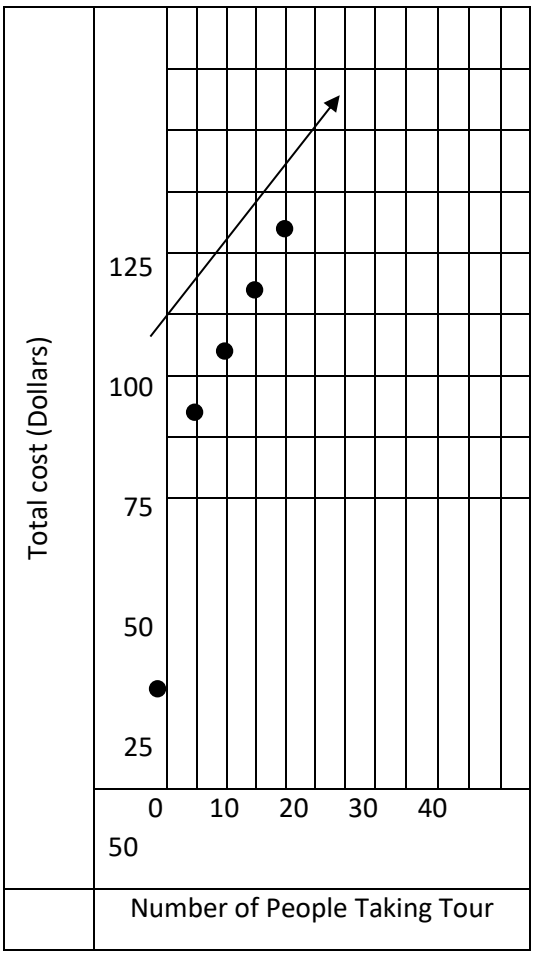
$$\frac{x^2}{9} + 4xy^3$$

Help Link: https://www.youtube.com/watch?v=ZaPrdsJvF8Q

Problem 2f: Simplify: $5x^6(2x^3 - 7x^2 + x)$

Help Link: https://www.youtube.com/watch?v=m9RRyeFXRhA

Problem 3f: The total cost for touring the natural history museum includes a one-time tour guide fee and a cost per person taking the tour. The relationship, n, the number of people going on the tour, and t, the total cost, is shown on the graph.



Problem 4f: Use the formula for the perimeter of a rectangle: P = 2(l + w). Solve for w.

Help Link: https://www.youtube.com/watch?v=fnuIT7EhAvs

Problem 5f: Find the equation of the line in slope intercept form given a slope of 4/5 and passes through the point (3, -8).

Help Link: https://www.youtube.com/watch?v=REXFV61M37Q

Week of July 13th: Solving Systems of Linear Equations by Substitution

Video Link: https://www.youtube.com/watch?v=V7H1oUHXPkg

Problem 1g: What are the solutions of the system of equations $\begin{cases} y = x - 3 \\ 2x + y = 12 \end{cases}$?

Problem 2g: What are the solutions to the system of equations $\begin{cases} 5x-3y=2 \\ x=2-y \end{cases}$?

Problem 3g: What are the solutions to the system of equations $\begin{cases} x+y=3 \\ x-2y=-6 \end{cases}$?

Problem 4g: What are the solutions to the system of equations $\begin{cases} 2y=x+5 \\ 2x-2y=1 \end{cases}$?

Problem 5g: What are the solutions to the system of equations $\begin{cases} 4x+3y=6 \\ 3x-2y=-4 \end{cases}$?

Week of July 20th: Solving Literal Equations

Video Link: https://www.khanacademy.org/math/algebra-home/alg-basic-eq-ineq/alg-old-school-equations/v/solving-for-a-variable

Problem 1h: Solve $d=rt$ for t.

Problem 2h: Solve $A=\frac{bh}{2}$ for h.

Problem 3h: Solve $A=\frac{(b_1+b_2)h}{2}$ for b_2.

Problem 4h: Solve $m=\frac{y_2-y_1}{x_2-x_1}$ for y_1.

Problem 5h: Solve $F=\frac{lt}{d}$ for l.