



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/RPVu3pYDUFU>

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

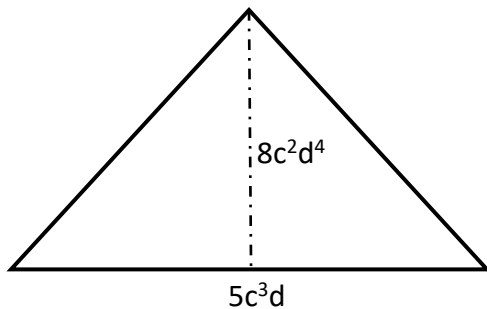
Problem 1b: Which expression is equivalent to $(xy-6)^2$ for all values of x and y where the expression is defined?

- 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. ($Area = \frac{1}{2}bh$)

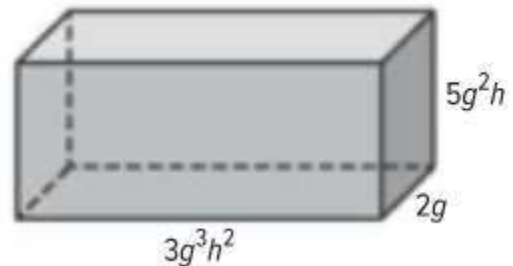


Problem 4b: The area of a rectangle is $54x^9y^8$ square yards. If the length of the rectangle is $6x^3y^4$ yards, which expression represents the width of the rectangle in yards?

- 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=xOxvyeSI0uA&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 ($<$, $>$, \leq , \geq) that fits the following characteristics: closed dot and shaded to the right.

Problem 4e: Identify all synonyms for the " \geq " 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 $y = 3$?

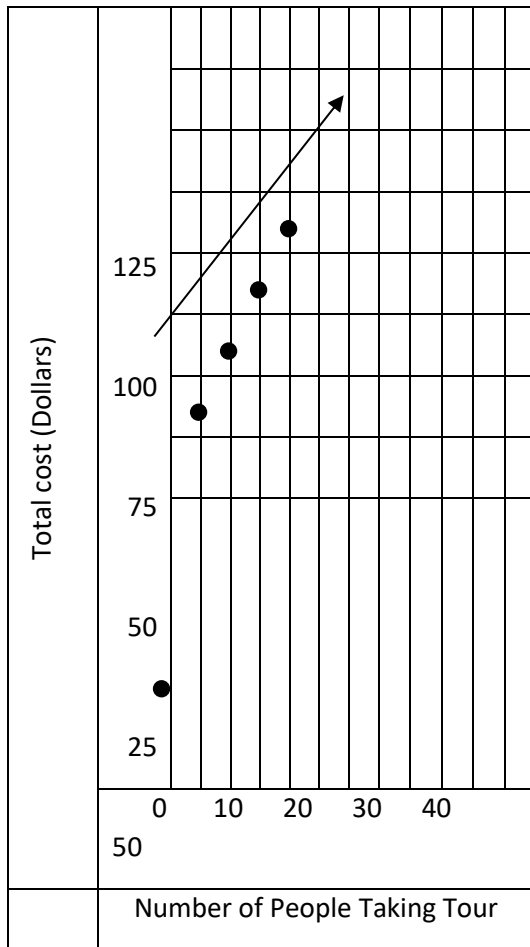
$$\frac{x^2}{9} + 4xy^3$$

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 $\frac{4}{5}$ 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-eg-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 .