 <p>COMMUNITY CHARTER SCHOOL OF CAMBRIDGE</p>	<p>Geometry Summer Assignment</p>	<p>Geometry Summer HW Name: Date Due: 8/29/18</p>
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WHAT:

This is an *mandatory* packet that will help you review topics from Algebra 1 and Geometry that you will need to be successful next year in Algebra 2. It will be graded for accuracy and completion by your math teacher next school year. If you need help or extra practice, you can search for the topics on Khan Academy or IXL. Your IXL account will remain active until 8/17/18.

WHY:

There are certain topics from Algebra 1 that you haven't practiced very much in Geometry, but you will need to remember next year in Algebra 2. Without practice, remembering these topics can be tough and stressful. Taking time over the summer to review will help you **be more confident** and **less stressed** next year in Algebra 2.

WHEN:

While it is worthwhile to do this packet at any point this summer, it's better to spread the work out than cram it all in right at the start or end of your summer. Your math muscles will be much stronger if you do some practice every week rather than if you were to do one intense workout and nothing the rest of the summer (ask Mr. Gibson, it's true!).

So set a goal for yourself: maybe you want to do a problem a day or 5 problems every week. Find a plan that works for you and stick to it!

You should plan to turn this packet in on the first day of the next school year, August 29, 2018.

Exponent Rules:

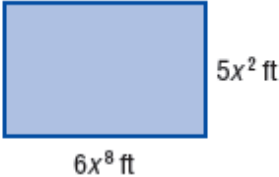
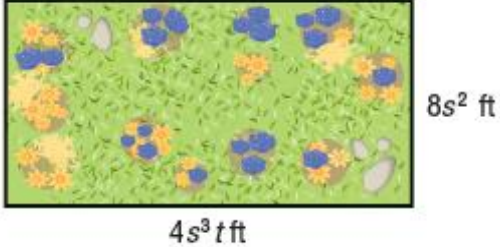
Laws of Exponents		
product	$a^m \cdot a^n = a^{m+n}$	$2^2 \cdot 2^3 = (2 \cdot 2)(2 \cdot 2 \cdot 2) = 2^5$
quotient	$\frac{a^m}{a^n} = a^{m-n}$	$\frac{2^3}{2^2} = \frac{2 \cdot \cancel{2} \cdot \cancel{2}}{\cancel{2} \cdot \cancel{2}} = 2^{3-2} = 2$
power	$(a^m)^n = a^{m \cdot n}$	$(2^2)^3 = (2 \cdot 2 \cdot 2)(2 \cdot 2 \cdot 2)(2 \cdot 2 \cdot 2) = 2^6$
inverse	$a^{-1} = \frac{1}{a}$	$2^{-1} = \frac{1}{2}$ (this is a definition)
zero power	$a^0 = 1$	Why? We need $a^m a^n = a^{m+n}$ when $m = 0$. In order for this law to be satisfied when $m = 0$, we have $a^n = a^{m+n} = a^{0+n} = a^0 a^n$, so a^0 must be 1.

Simplify each expression.

1) $(5u^4v)(7u^4v^3)$	2) $(4a^4b^9c)^2$
3) $(5x^2y)^2(2xy^3z)^3$	4) $(-2u^2)(6u^6)$
5) $\left(\frac{2a^3b^5}{3}\right)^2$	6) $(14fg^2h^2)(-3f^4g^2h^2)$

7) $\left(\frac{3f^4gh^4}{32f^3g^4h}\right)^0$	8) $\frac{4r^2v^0t^5}{2rt^3}$
9) $\frac{2a^2b^{-7}c^{10}}{6a^{-3}b^2c^{-3}}$	10) $\left[(-2y)^2\right]^3$

Express area as a simplified monomial.

11) 	12) 
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Solve Exponential Equations Using Exponent Properties

Steps to Solve:

- 1) Rewrite each power so that the bases are the same.
- 2) Set exponents equal to each other.
- 3) Solve.

Solve $5^{3x-2} = 125^{2x}$

$$5^{3x-2} = 125^{2x}$$

$$5^{3x-2} = (5^3)^{2x}$$

$$5^{3x-2} = 5^{6x}$$

$$3x-2 = 6x$$

$$-2 = 3x$$

$$x = -\frac{2}{3}$$

13) $12^{2x+3} = 144$

14) $3^{1-2x} = 243$

15) $3^{x-5} = 27$

16) $8^{4x+2} = 64$

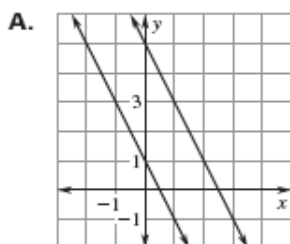
17) $2^{3x-5} = 16$

18) $9^{3x+1} = 27^{x+2}$

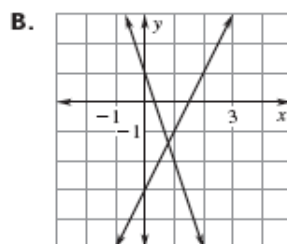
Systems of Equations:

Match the linear system with its graph. Then use the graph to tell whether the linear system has *one solution*, *no solution*, or *infinitely many solutions*.

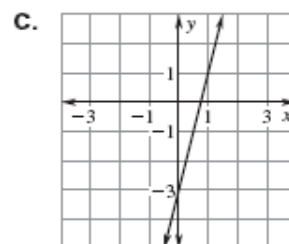
19) $y + 3 = 4x$
 $3y = 12x - 9$



20) $2x + y = 1$
 $2x + y = 5$



21) $3x + y = 1$
 $-2x + y = -3$



Use elimination or substitution to solve for x and y in the following systems of equations.

22) $4x - 3y = 12$
 $x + 2y = 14$

23) $2x + 7y = 31$
 $3x + 4y = 27$

24) $x + 4y = 2$
 $6x - y = -13$

Solving Quadratic Equations:

Quadratic Formula

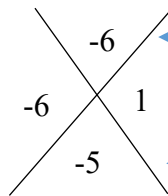
Steps to Solve:

1. Try to use a diamond to factor and then solve.
2. If you can't solve a diamond, use the quadratic formula:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Example:

$$x^2 - 5x - 6 = 0$$



Need numbers that **multiply** to -6 and **add** to -5

$$(x - 6)(x + 1) = 0$$

$$(x - 6) = 0 \quad \text{or} \quad (x + 1) = 0$$

$$x = 6 \quad \text{or} \quad x = -1$$

25) $x^2 - 7x + 12 = 0$

26) $x^2 + x - 20 = 0$

$$27) y^2 - 6y - 27 = 0$$

$$28) a^2 + 11a + 18 = 0$$

$$29) h^2 - 16h + 48 = 0$$

$$30) d^2 + 18d + 56 = 0$$

$$31) x^2 + 2x + 6 = 0$$

$$32) a^2 - 10a + 2 = 0$$

Simplifying Radicals:

Example: $\sqrt{54} = \sqrt{9}\sqrt{6} = 3\sqrt{6}$

$$33) \sqrt{50}$$

$$34) \sqrt{63}$$

$$35) \sqrt{98}$$

$$36) \sqrt{48}$$

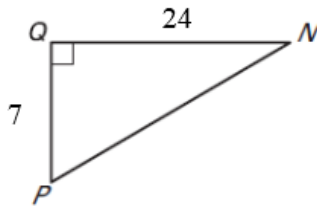
$$37) \sqrt{72}$$

$$38) \sqrt{216}$$

Trigonometry:

39) What is the length of NP in the diagram below?

40) Evaluate the trigonometric ratios below.



a. $\cos N =$

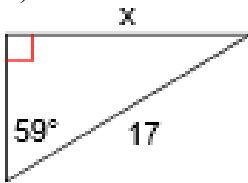
b. $\tan P =$

c. $\sin P =$

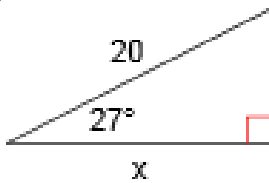
d. $\tan N =$

Find the value of x in each triangle below. Round your answer to the nearest tenth. Show your work!

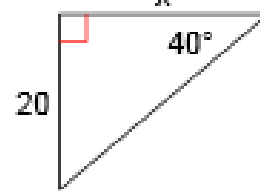
41)



42)

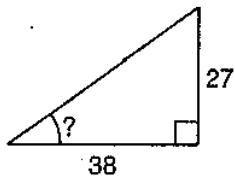


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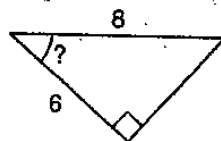


Find the measure of each indicated angle to the nearest degree. Show your work.

44)



45)



46)

