Summer Assignment for incoming College Algebra students

Student Name:

Period:

Directions:

- The summer packet contains material learned during Algebra 1 and Geometry curriculum. Because these lessons are pre-requisites for Algebra 2 then I expect students to get master on them. Algebra 2 curriculum does not include these lessons.
- Students will find a list of videos in an attachment to help them to remember each lesson.
- Students MUST show their work for each problem of this review packet. Each problem should be worked through to its entirety, and correctly; not just attempted.
- The packet will be student's the first grade for the new school year.
- Each student should be prepared to have the summer packet completed and ready to checked during the first week of school.
- Over the course of the first two weeks of the beginning of the school year, the packet will be reviewed, and an assessment will be given as the first test grade of the new school year.
- Do not wait until last minute to do it, remember that you will be tested on these lessons.
- Organize your time wisely. For example, you can do a lesson per week. Then you will have plenty of time to finish before the new school year starts.

Have a blast and bless summer! 

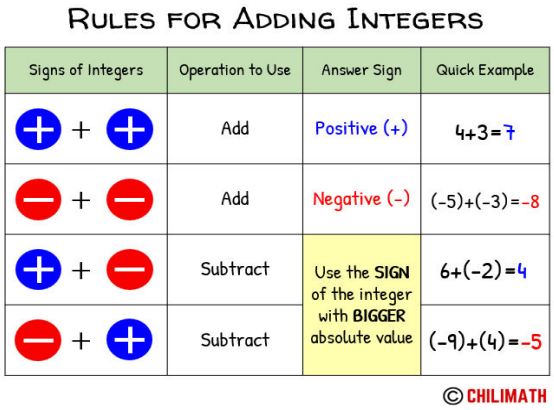
Videos related to your College Algebra Summer Packet:

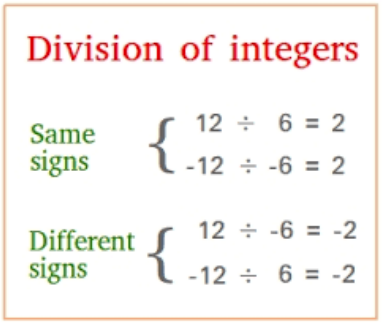
Adding and subtracting fractions: https://www.youtube.com/watch?v=N-Y0Kvcnw8g

Multiplying fractions: Do not forget to **simplify** before to multiply.
https://www.youtube.com/watch?v=UacpcSkBhbM

Dividing fractions: Apply the Keep Change Flip (KCF) rule. Then you can simplify
https://www.youtube.com/watch?v=4lkq3DgvmJo

Operations with integer numbers:





If you still need help watch the following video: https://www.youtube.com/watch?v=_BgblvF90UE

Distributive property: https://www.youtube.com/watch?v=v-6MShC82ow

Numbers set: https://www.youtube.com/watch?v=soNlNuT-Zrs

numbers set song: https://www.youtube.com/watch?v=m94WTZP14SA

Pythagorean Theorem: https://www.youtube.com/watch?v=WqhlG3Vakw8

Basic inequalities: https://www.youtube.com/watch?v=mgHO-bsCDrA

Solving and graphing inequalities: https://www.youtube.com/watch?v=EE2qWIyjKD0

Linear functions: https://www.youtube.com/watch?v=MXV65i9g1Xg&t=610s

Part One: Order of Operations

Directions: Simplify each problem in the space provided, circling your final answer. Final answer should have all positive exponents and be in simplest form. No decimal approximations allowed.

Properties

1. Grouping symbols
2. Exponents
3. Multiplication or Division
   In order from left to right
4. Addition or Subtraction
   In order from left to right

Example: $2^3-(4+3*5)$ $=(2*2*2)-(4+3*5)$ $=(8)-(4+15)$ $=8-(19)$ $=-11$	1. $(15-8)\times 3+5+48-6$	2. $18\div 9\times(5-2)+7$
3. $4^3+2+8-60\div 3\times 6-3$	4. $(a^2-b)\div 6$, using $a=6, b=12$	5. when $x=-5$
6. $2x^2-2x+24$ when $x=2$	7. $\frac{3x^2+5}{12x-4}$, when $x=-1$	8. $\left(a+\sqrt{16}\right)\left(\frac{1}{a^2}-\frac{a}{3}\right)$ when $a=2$

Part Three: Rules of Exponents

Directions: Simplify each problem in the space provided, circling your final answer. Final answer should have all positive exponents.

Properties

$a^m \bullet a^n = a^{m+n}$ $\quad (a^m)^n = a^{mn}$

$(ab)^m = a^m b^m$ $\quad a^{-m} = \frac{1}{a^m}, a \neq 0$

$\frac{a^m}{a^n} = a^{m-n}, a \neq 0$ $\quad \left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}, b \neq 0$

Example: $(2a)^{-3}$ $= \frac{1}{(2a)^3}$ $= \frac{1}{(2a)} * \frac{1}{(2a)} * \frac{1}{(2a)}$ $= \frac{1}{2^3 a^3} = \frac{1}{8a^3}$	14. $(7x)^{-2}$	15. $(2x^2 y)^0 (3xy)^3$
16. $\frac{a^3}{a} - \frac{4a^6}{a^4}$	17. $(4x^3)^3$	18. $\left(\frac{5u^2}{2v^2}\right)^2$
19. $(3^{-1} + 2^{-1})^2$	20. $\left(\left(\frac{3}{4}\right)^2 + 1\right)^2$	21. $\left(\frac{x^2 y^8 z^2}{xy^2 z^6}\right)^2$

Part Four: Simplifying Radicals

Directions: Simplify each problem in the space provided, circling your final answer. Final answer should have all positive exponents and be rationalized. No decimal approximations allowed.

Properties

- $\sqrt{ab} = \sqrt{a} \bullet \sqrt{b}$
- $\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$
- $a^{\frac{m}{n}} = \sqrt[n]{a^m}$ or $\left(\sqrt[n]{a}\right)^m$
- $\sqrt{x^2} = x$

Example: $\sqrt{24}$ $= \sqrt{4 * 6}$ $= \sqrt{4} * \sqrt{6}$ $= 2\sqrt{6}$	22. $3\sqrt{700}$	23. $\sqrt{\frac{100}{49}}$
24. $3\sqrt{700} + 2\sqrt{7}$	25. $\left(2\sqrt{6}\right) \bullet \left(3\sqrt{15}\right)$	26. $\sqrt{12} - \sqrt{48}$
27. $\sqrt{75x^3} \bullet \sqrt{3x^3}$	28. $\frac{50a}{2\sqrt{25a^2}}$	**BE CAREFUL:** $\sqrt[n]{a+b} \neq \sqrt[n]{a} + \sqrt[n]{b}$ $\sqrt[n]{a-b} \neq \sqrt[n]{a} - \sqrt[n]{b}$ $\sqrt[n]{a^n + b^n} \neq a + b$

Part Five: Simplifying Polynomials

Directions: Simplify each problem in the space provided, circling your final answer. Final answer should have all positive exponents and be in simplest form. No decimal approximations allowed.

Properties

$c(x+y)=cx+cy$

$(a+b)(c+d)=ac+ad+bc+bd$

Example: $(4x^2+7x-12)-(3x^2+5x+2)$ $=4x^2+7x-12-3x^2-5x-2)$ $=4x^2-3x^2+7x-5x-12-2)$ $=x^2-2x-14$	29. $(7x-2y)-(3x+5y)$	30. $-7x(2x-9)$
31. $(-3x+y)+(2x-y)$	32. $(3x+4)(2x-9)$	33. $7(3x^2+10x)-4x$
34. $3x^2+10x-4(x-7)$	35. $(3x^2+5)(2x-3)$	36. $(-3x+y)(2x-y)$