**6.1 Proportions**

**Ratio: a comparison of 2 values**

**Can be written 3 ways. . .**

**a to b or a:b or** $ \frac{a}{b}$

**Ex. If there are 14 boys and 18 girls in this class, what is the ratio of boys to girls?**

**Extended ratio: comparison of 3 or more values**

**Ex. a to b to c, a:b:c**

**Ex. The measures of the angles in Triangle CDA have the ratio 1:2:3. Find the measure of each angle.**

**Proportion: equation of 2 equal ratios** $\frac{a}{b}$ **=** $\frac{c}{d}$

 ***a* and *d* are the extremes**

***c* and *b* are the means**

**Cross Product Property**

**If** $\frac{a}{b}$ **=** $\frac{c}{d}$ **then *ad*=*bc***

**\*\*The product of the extremes equals the product of the means.**

**How would you solve this equation for x? What property would you use to solve?**

$\frac{x}{5}$ **=** $\frac{4}{17}$

**Arithmetic Mean**

**Arithmetic Mean of a and b is the average of the 2 quantities**

**a+b**

 **2**

**Geometric Mean**

**The geometric mean of a and** b **is the positive number x that satisfies**

$\frac{a}{x}$ **=** $\frac{x}{\begin{array}{c}b\\\end{array}}$

**X2=ab**

**X =**$\sqrt{ab}$

**Ex. Find the arithmetic and geometric mean of 9 and 10.**

**Arithmetic Mean:**

**Geometric Mean:**