| Numbers, Sequences, Factors |  |
| :---: | :---: |
| Integers: | $\ldots,-3,-2,-1,0,1,2,3, \ldots$ |
| Rationals: | fractions, that is, anything expressable as a ratio of integers |
| Reals: | integers plus rationals plus special numbers such as $\sqrt{ } 2, \sqrt{ } 3$ and |
| Order Of Operations: | PEMDAS (Parentheses / Exponents / Multiply / Divide / Add / Subtract) |
| Arithmetic Sequences: | each term is equal to the previous term plus $d$ Sequence: $t 1, t 1+d, t 1+2 d, \ldots$ Example: $d=4$ and $t 1=3$ gives the sequence 3,7 , $11,15, \ldots$ |
| Geometric Sequences: | each term is equal to the previous term times $r$ Sequence: $t 1, t 1 \cdot r, t 1 \cdot r 2, \ldots$ Example: $r=2$ and $t 1=3$ gives the sequence 3,6 , $12,24, \ldots$ |
| Factors: | the factors of a number divide into that number without a remainder |
| Multiples: | the multiples of a number are divisible by that number without a remainder |
| Percents: | use the following formula to find part, whole, or percent part = percent $100 \times$ whole |


| Averages, Counting, Statistics, Probability |  |
| :--- | :--- |
| average | average = sum of terms number of terms |
| average speed | total distance/total time |
| sum | Average*number of teerms |
| mode | value in the list that appears most often |
| median | middle value in the list (which must be sorted) Example: median of $\{3,10,9,27,50\}=10$ Example: median of $\{3,9,10,27\}=$ <br> $(9+10) / 2$ |
| Fundamental Counting | If an event can happen in $N$ ways, and another, independent event can happen in $M$ ways, then both events together can <br> happen in $N \times M$ ways. |
| Principle: | SAT Prep |

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