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| **Learning Goal: I will solve word problems graphically using technology.****Download**: Desmos Graphing Calculator. calc_thumb.png |

**HOW TO SOLVE WORD PROBLEMS?**The hardest thing about doing word problems is taking the English words and translating them into mathematics. Usually, once you get the math equation, you're fine; the actual math involved is often fairly simple.

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| **Step 1: Read** the problem 2 or 3 times to get a general idea.**Step 2: Identify** the known and unknown highlighting/ underlining.**Step 3**: **Write** a let statement for each of the unknowns.**Step 4: Translate** English sentences into mathematical expressions and equations. **Step 5**: **Solve.****Step 6: Check.****Step 7: State** your answer in a short sentence.\*\*PUT FORMAL MATH ON THE LEFT\*\*SKETCH, NOTES, GRAPHS ON THE RIGHT |

First, let’s identify some key words. Copy the table below in your notes.

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| **KEY WORDS IN WORD PROBLEMS** |
| **DIVISION****division.PNG** | **MULTIPLICATION****times.PNG** |
| **Divide, Quotient****Goes into, Split equally****Per, Out of, Ratio of****Percent (divide by 100)** | **Multiply, times****of****multiplied byProduct of** |
| **ADDITION****plus.PNG** | **SUBTRACTION****minus.PNG** |
| **Add****Sum, plus****Total of****Combined together****Increased by****More than** | **Decreased byminus, lessDifference between/ofLess than** **Fewer than****Subtract****Remain** |
| **EQUALS****minus.PNG****minus.PNG** |
| **is, are, was, were, will begives, yields, sold for** |

**Example 1:** 60% of the school population is 300. What is the school population?

**Example 2:** Find a number when subtracted by 4 it is the same as when the number has been increased by 3 and then halved.

**Example (Textbook p. 10)**

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| Ian owns a small airplane. He pays $50/h for flying time and $300/month for hangar fees at the local airport. If Ian rented the same type of airplane at the local flying club, it would cost him $100/h. How many hours will Ian have to fly each month so that the cost of renting will be the same as the cost of flying his own plane? |

**Solution**

**Step 1: Read** the problem 2 or 3 times to get a general idea.

**Step 2: Identify** the known and unknown by highlighting/ underlining.

**Step 3**: **Write** a let statement for each of the unknowns.

Let “C” represent the total cost (dollars)

Let “t” represent the flying time (hours)

**Step 4: Translate** English sentences into mathematical expressions and equations.

C = 50*t* + 300 (1)

C = 100*t* (2)

**Step 5**: **Solve. (Let’s solve this system using desmos.)**



**The point of intersection is (6, 600).**

**Step 6: Check.**

(1) **LS** = 600 **RS** = 50(6) + 300 = 600

(2)  **LS** = 600 **RS** = 100(6) = 600

**Step 7: State** your answer in a short sentence.

 ∴ If Ian flies 6 hours a month, the cost to own and rent would be the same ($600).

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| In class work: Textbook p. 17 #10 – 13, 19, 20 |