IM2 Problem Set 1.1 - The Art of Problem Solving

BIG PICTURE of this UNIT:	- mastery with linear algebraic skills to be used in our work with coordinate geometry (midpoint, length, slope) - understanding various geometric properties of quadrilaterals, triangles & circles - how do you really "prove" that something is "true"? - introduction to working with 3D shapes

Part 1 - Skills Review

1. Solve for x and verify your solutions:

    a. $5x - 9 = 13$ b. $-\frac{2}{3}x + 7 = -3$ c. $8 - x = 3x - 1$ d. $1 - 3x = 2x - 9$

2. Graph the line through the points A(2,5) and B(6,−3).

3. Find the slope of the line through the points A(2,5) and B(6,−3).

4. Find the equation of the line through the points A(2,5) and B(6,−3).

5. Determine the slope of a line perpendicular to line AB.

Part 2 - Problem Solving

Problem 1: The Camel Problem

Please work in your groups to solve this problem. Show your work with pictures, charts… anything. Your process and solution must be understandable by simply looking at your work.

The Problem…

There is a camel on the edge of a 1000 km wide desert. Beside the camel is a pile of 3000 bananas. The camel can carry at most 1000 bananas at a time. For every kilometer it walks, the camel must eat one banana. What is the largest amount of bananas the camel can end up with on the other side of the desert?

Extension Questions:

How do you know if your solution is the "correct" answer?

How does the problem change if you have 6000 bananas and the desert is 2000 km wide?

How does the problem change if you have **B** bananas and the desert is **K** km wide?

Higher Level Extension Work

In his latest game, Mark Striker bowled a score of 199 and thereby raised his average score from 177 to 178. Mark would like to raise his average score to 180 after bowling his next game. What does Mark need to score on his next game to accomplish his goal?