## Lesson Context

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| BIG PICTURE of this UNIT: | • What are the most important components of "Problem Solving"? <br> • From last year's course, what are the major topics from linear relations that we have worked with, remember, and are fluent with? <br> • How do we apply the concept of linear relations to (i) geometry & (ii) data analysis? |

## Lesson Objectives

PART 1: Skills REVIEW ➔ (i) Solving Linear Equations; (ii) Equations of Lines
PART 2: Skills PRACTICE ➔ (i) Problem Solving

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

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

4. Graph 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 – Skills PRACTICE

Problem 1: A journey of a thousand miles …….

Here is a quote from Lao Tzu: " A journey of a thousand miles begins with a single step".

   (a) So, how many steps does this journey take?
   (b) Who was Lao Tzu anyway?
   (c) EXTENSION: How would the solution to your problem change if half the journey was uphill?

Problem 2: 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 it 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 $w$ km wide?

Problem 3: Problem Solving and Skills Focus


Would you rather have 1 of 8 slices from a 10" pizza OR 1 of 10 slices from a 14"?

EXTENSION: (Blue Level)

Into how many slices should the 14" pizza be cut so that one slice is less than $1/8^{th}$ of the 10" pizza?

**Higher Level Extension Work**

## Problem of the Week
### Problem D
### An Average Bowl

In his latest game, Mark Striker bowled 199 and raised his average from 177 to 178. Mark would like to raise his average to 180 after bowling his next game.

What would Mark need to bowl on his next game to accomplish his goal?