

Quiz 1

Key

This is a two-stage quiz. During the first stage, use your knowledge & calculator to take this quiz. You have 15 min. In the second stage, you are now welcome to use your books, notes, and students in the class to retake the same quiz. You have 15 min. to write one solution (with everyone's name on it!!!) to be turned in for the group.

Show your work as you would for a *colleague*. Partial credit requires reasonable support.

1. [4] When a teacher counted their students in groups of three, there were two students left over. When they counted in groups of five, there was one student left over. Given that the class size is between 15 and 30 students, how many students are in the class?

start (4.5)
reason (1)

Looking for a number on both lists (starting @ 15)

(1) # when divided by 3 have 2 left: 17, 20, 23, 26, 29, 32
(2) # when divided by 5 have 1 left: 16, 21, 26, 31
→ 26 is on both lists

(+5) 26 is on both lists $\Rightarrow$ there are 26 students

2. Suppose you own a square piece of land. You trade your land for a rectangular lot. The length of your new lot is 2 meters longer than the original lot and the width is 2 meters shorter than the original lot. Does your new lot have as much land as the old?

- (a) [2] If your first piece of land is 30 meters by 30 meters, what are the dimensions of the new lot?

start (4.5)
sense (4.5)

30x30 m² traded for 32 by 28 meters²
(+5) (+5)

Note 900m² vs the new 896 so have less land

- (b) [4] What kind of strategy (eg. drawing, table, guessing & checking, models, work backwards, etc) might you use to try to solve this problem generally? Briefly start so the strategy can be easily seen. (Note, the *answer* does not need to be found, just the set up for the strategy work!)

Area (1)
start (4.5)

strategy (1)

start strategy (1)

sense (4.5)

Part a had me guessing & checking/trying examples
So if start with 32x32 trade to 34x30
1024m² traded to 1020
also less.

(always 4m² less) $\rightarrow$ Generally trading $x \cdot x$ or x^2 to $(x+2)(x-2) = x^2 - 4$