Answers

1. 3 boxes of apples, 1 box of oranges, 4 boxes of lemons.

2. Find the area of the larger square in two different ways.

3. Let the rectangle have sides of length a, b where

$$a + b = 10. \tag{1}$$

By Pythagoras' theorem, the diagonal d has length

$$d^2 = a^2 + b^2 \tag{2}$$

Sub equation **??** into equation 2, the result is

$$d^2 = 2a^2 - 20a + 100$$

Use the formula for the minimum value of a parabola to find that $a = b = 5$. Hence

$$d + b^2 + c^2) \qquad 2(ab + bc + ca)$$
$$3(a^2 + b^2 + c^2) \qquad (a^2 + b^2 + c^2) + 2(ab + bc + ca)$$
$$3(a^2 + b^2 + c^2) \qquad (a + b + c)^2$$
$$a^2 + b^2 + c^2$$

$$\frac{}{3} \qquad \frac{a + b + c}{3}^{2}$$