Set 1 - Algebra, Bakery:

(no calculator)

1. Lila, who moved from America to Europe, needs to purchase 16 pounds of apples to make pies for her bakery. To the nearest whole number, how many kilograms of apples will Lila need to buy?
    a. Answer: 7 kilograms (7.25758) - No unit needed.
2. Musa has $20 and needs to buy some baked goods. He can purchase donuts for $2 each or muffins for $3 each. When purchasing, how many donuts will he have to give up to swap them out for 2 muffins?
    a. Answer: 3 donuts
3. Musa still has $20 and needs to buy some baked goods. The donuts are still $2 and the muffins are $3. He needs to give one baked good to a total of 8 people. How many muffins and donuts does he buy?
    a. Answer: Four muffins and four donuts.
4. Lila, who runs her successful bakery in Europe, has to change her prices. Let's say that one euro is about 1.2 USD, and One Euro has the purchasing power of about $1.4 USD. If one donut is 3 euros, what is the value of the donut in USD, and the purchasing power of the value of the donut in USD?
    a. $3.6 USD value, and $4.2 purchasing power.
5. Musa runs an advertising campaign for a business. Every 30 minutes, the number of views on the business's Instagram post doubles. If the post starts out with 10 views at 12:00 pm, how many views will there be by 1:30 pm on the same day?
    a. Answer: 80 views.
6. The equation y = 1.5x^2 models the prediction for the amount of goods sold (y) for a certain price point (x). What is the inverse equation?
    a. Answer: the square root of the quotient of x/1.5, or sqrt(x/1.5) or square root of 2x divided by 3

(calculator allowed)

7. The density of water is one gram per cubic centimeter. One cubic centimeter is the same as one milliliter. If you have a 0.5-liter bottle of water, how many milligrams of water do you have?
    a. 500,000 milligrams of water
8. You are paying a company to paint a mural. If the length of the mural will be 5x+3 and the width will be 10x+2, what is the area of the mural?
    a. 50x^2 + 40x +6
9. Bugs are infesting the sugar cabinet. Lila sees 6 bugs on the first day and 625 bugs on the fourth day. At what rate are these bugs multiplying, to the nearest whole number?
    a. 5 times (accept similar answers)
10. Lila has moved out of the old building and is looking for a building with a floor area of 500 sq ft. She wants the room to be as square as possible (have the least difference

between the length and width). What length and width, or dimensions, will help her achieve this?

a. 20 feet by 25 feet (accept similar answers)

11. Donuts are sold in packages of moles (6x10^23 donuts per package). If I have 12 x 10^24 donuts, how many moles of donuts is that, and what will be the price for the donuts if I get the first 0.5 moles free and have to pay for the remaining moles at a rate of $1.45 per mole?
    a. You pay $28.28 ($28.275) for 20 moles of donuts.
12. The cake carrier tossed the cake in the air and slipped, and a video was taken of this and slowed down. The movement of the cake in the slowed-down video is modeled by the equation y=-x^2 +3x +10. If x represents time in seconds in the video, how many seconds after slipping did the cake hit the ground?
    a. 5 seconds. (Do not accept -2 seconds. Time cannot be negative, y'all!)