

Mathematics Assessment 2022

Grade 8

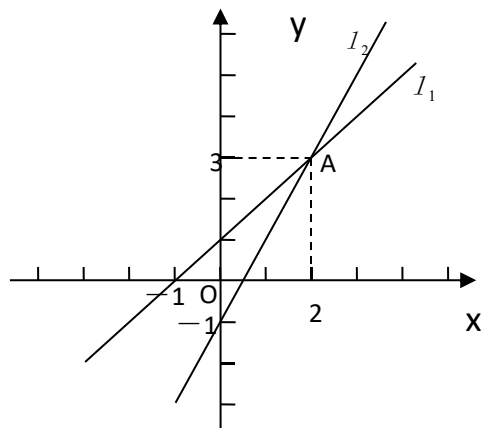
1. The arithmetic square roots of 625 is ____, and the square root is ____.

2. Solve the simultaneous equations.

$$(1) \begin{cases} 7x + 3y - 36 = 0 \\ 2x + 9y - 51 = 0 \end{cases}$$

$$(2) \begin{cases} \frac{1}{2}x + \frac{1}{3}y = 4 \\ 3x + y - 18 = 0 \end{cases} \quad (\text{Use substitution})$$

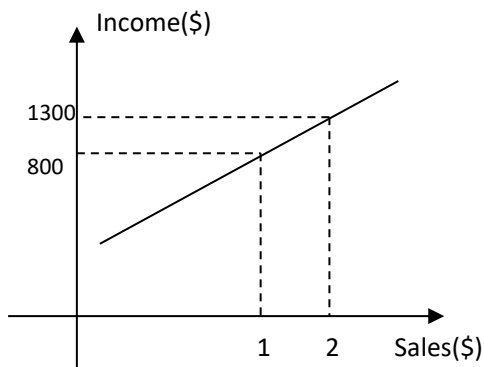
3. Given two lines l_1 , l_2 , list the simultaneous equations that the solution is point A.



4. Divide the area of a parallelogram into three equal areas using three different methods. (Draw your plan in the given graphics, no limit to drawing tools)

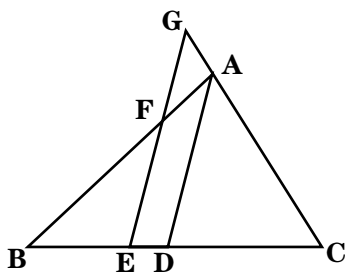


5. The relationship between the monthly individual income and monthly sales is linear function. The figure is given. What is the income of the stuff of the company when there is no sales? ().



- A. \$310 B. \$300 C. \$290 D. \$280

6. Given that AD bisects $\angle BAC$, $\angle BFE = \angle DAC$, Prove that $\angle BFE = \angle G$



7. A beverage factory produces beverage. It is determined that the relationship between the profit of drinks produced by a ton of water (dollar) and the price of a ton of water (dollar) is a linear function. According to the data provided in the following table, please solve for the function; when the water price is 10 dollar per ton, what is the profit of the beverage produced by a ton of water?

the price of a ton of water (dollar)	4	6
the profit of drinks produced by a ton of water (dollar)	200	198

8. Given the real numbers

$-\frac{1}{3}, \sqrt{8}, \sqrt[3]{-8}, -0.518, \frac{\pi}{3}, 0.6732323232\dots, |\sqrt[3]{-7}|, \sqrt{2}$, how many irrational numbers are in the additive inverse of them?

Answer:

1. 25 25 and -25

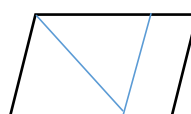
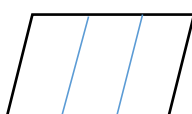
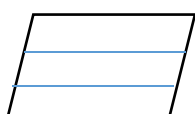
2. a. $x=3, y=5$

b. use substitution --- substitute $y = 18 - 3x$ into the first function

$$x = 4, y = 6$$

3.
$$\begin{cases} y = x + 1 \\ y = 2x - 1 \end{cases}$$

4.



5. B

6. $\therefore \angle AFE = \angle GFA$
 $\therefore \angle GFA = \angle DAC$
 $\therefore DA \text{ bisects } \angle ABC$
 $\therefore \angle DAC = \angle BAD$
 $\therefore \angle GFA = \angle BAD$
 $\therefore GE \parallel AD$
 $\therefore \angle G = \angle DAC$
 $\therefore \angle G = \angle BFE$

7. $y = -x + 204$

profit :194 dollars, water: 10dollars

8. 4 irrational numbers

$$\sqrt{8}, \frac{\pi}{3}, \sqrt[3]{-7}, \sqrt{2}$$