

MATH TEST (SAMPLE)

Please find the solutions on the last page.

1, At a big sale we get the HUF 4,000 blouse 30% cheaper. How much do we have to pay for the blouse?

2, At a company meeting, there were 90 people attending, 63 managers among them. What percentage of the attendants were managers?

3, In a group of 123 students, 72 can speak English, 43 can speak French and 11 can speak both languages. How many of them can not speak any language?

4, How much is the following expression? $\frac{\left(\frac{13}{17} - 2\right)}{\left(\frac{2}{3} + \frac{3}{4}\right)}$

5, How much is $\frac{4 \cdot (\sqrt{9} + \sqrt{4})^2 - 3\sqrt{100}}{7}$?

6, Find the value of $x^3 - 2x - 5 \cdot \sqrt{x}$ if $x = 4$.

7, Find the value of $3x^3 + 2y^2 + \frac{5}{7}xy$ for $x = -3$ and $y = 7$

8, Solve for b. $\frac{2}{-4}b - 2 = -\frac{9}{18}b + 4$

9, Solve for x. $2(x+3) - 3(2x-5) - 5 = 4(3x-4)$

10, Solve the quadratic equation $(2x+4) \cdot (x-7) = x^2 - 2x - 35$

11, Solve the quadratic equation $(x-3) \cdot (x+5) = (x+5)^2$

12, What are the coordinates of the common point of these two lines?

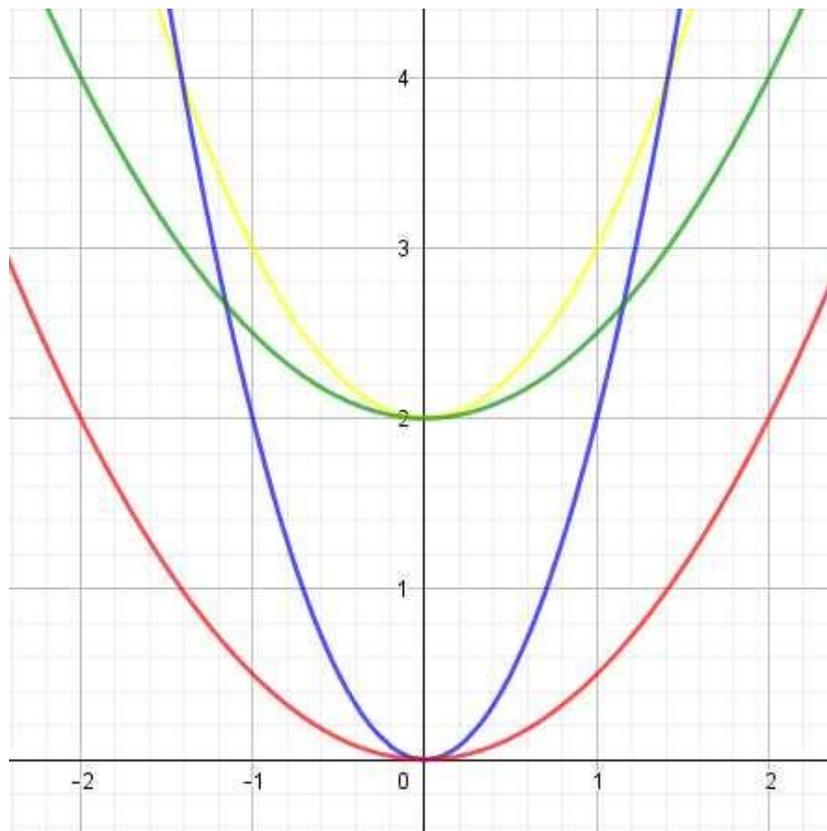
$$2x - 3y = -19$$

$$-9x - 3y = 3$$

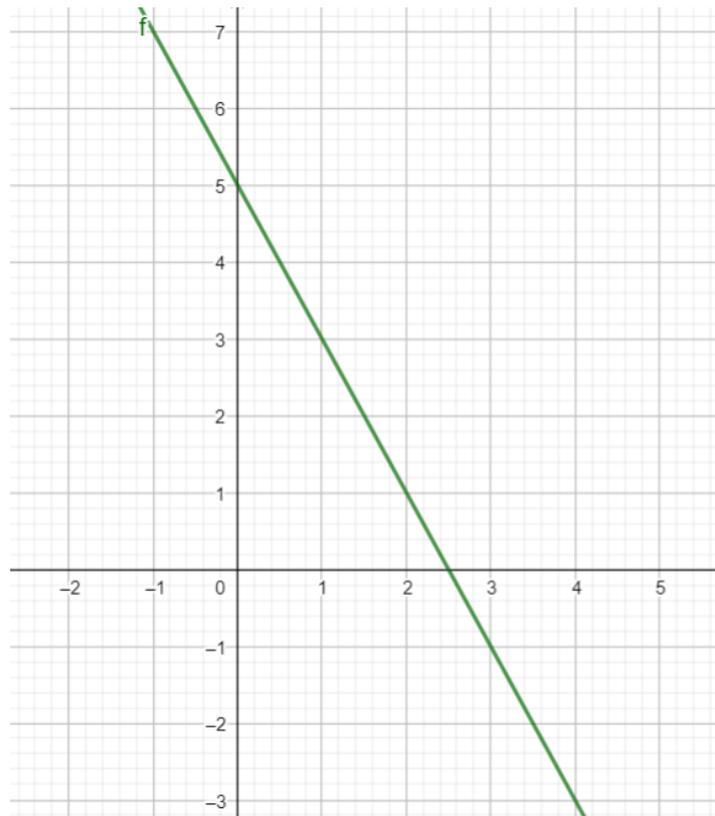
13, Simplify the expression: $\frac{a^{-1} \cdot b^3}{a^{-2} \cdot \sqrt[3]{b^6}}$

14, Simplify the expression: $\frac{x^{\frac{1}{3}}(y^{-2}+1)}{\sqrt[3]{x}(1+\frac{1}{y^2})}$

15, What graph belongs to the following function: $f(x) = 0,5x^2 + 2$



16, Which function belongs to the following graph?



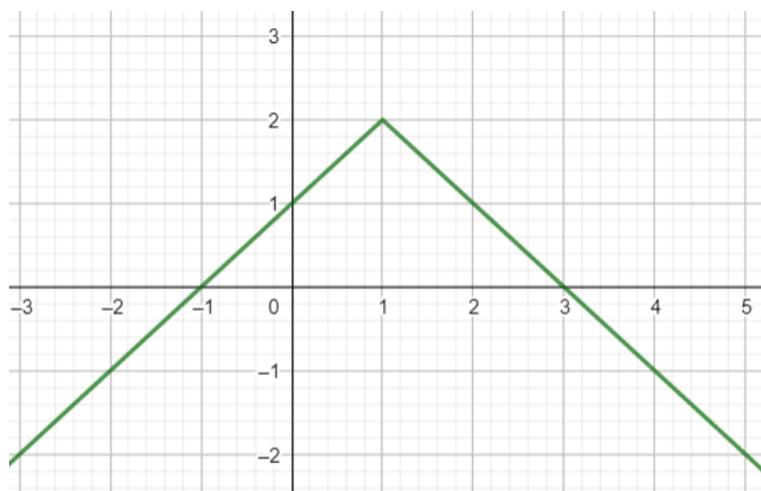
A, $f(x) = -2x + 5$

B, $f(x) = 2x + 5$

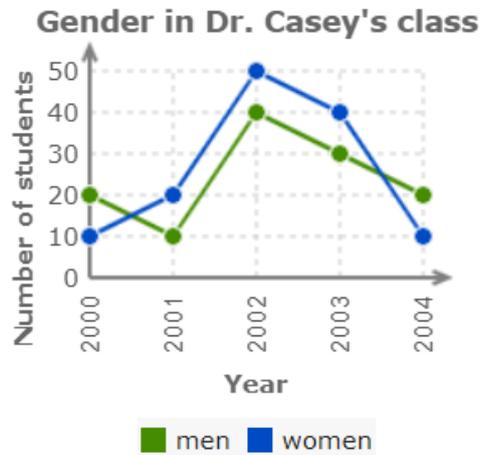
C, $f(x) = -5x + 2,5$

D, $f(x) = -x + 5$

17, Give the range set of the following function: $f(x) = -|x+1|+2$

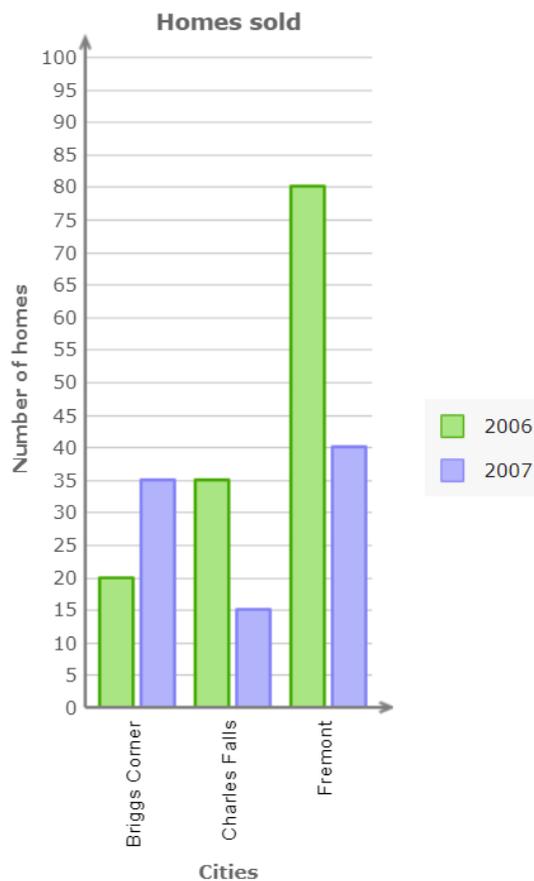


18, Dr. Casey, an international relations professor, kept track of the gender of his students.



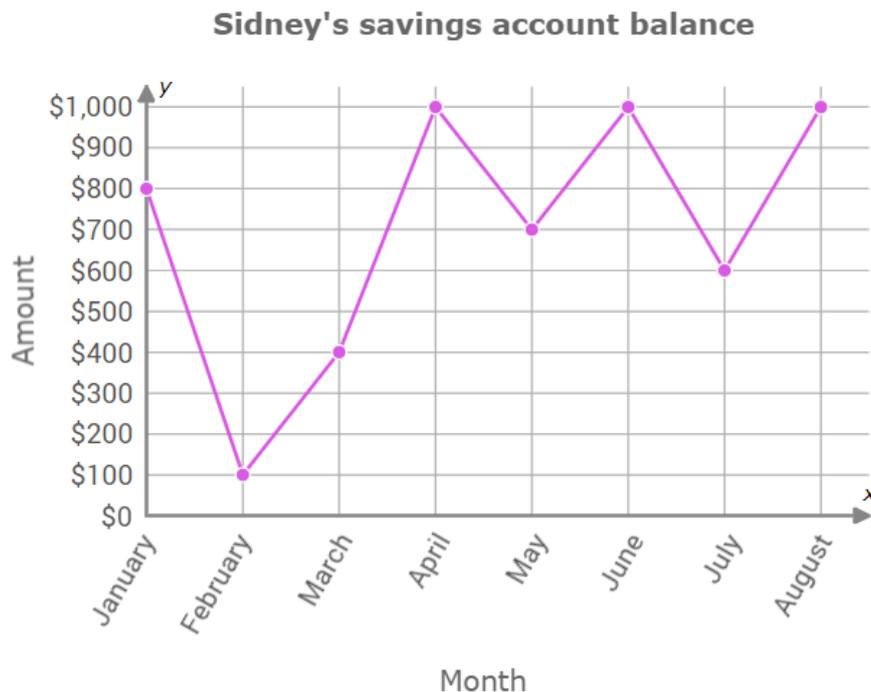
How many people (men and women) took his class in 2003?

19, A real estate agent tracked the number of homes recently sold in each of the nearby cities she served.



In which city were most houses sold in 2007?

20, At the end of each month, Sidney received a statement showing the balance of her savings account.



How much is the average amount of Sidney's savings in this period (from January to August)?

21, We have 4 numbers: 2, 4, 7, 8.

How many 4-digit numbers can we make from them, which are less than 4000?
(Repetition is not allowed.)

22, We toss a coin two times. What is the probability that both are heads?

23, There are 5622 students in a university. Among them 933 students are from abroad, the others are Hungarian. We want to choose one student. What is the probability that we choose a Hungarian student?

24, In a little town there are 173 families. We know the number of children of all families. See the following table.

Number of children	0	1	2	3	4	5	more
Number of families	38	43	57	22	8	3	2

What can we say about this city generally? How many children do most families have?

25, We know that in 2020 there were 2287 pharmacies and 6218 pharmacists in Hungary. How many pharmacists worked in one pharmacy generally?

(Give the solution rounded to the nearest whole number.)

SOLUTIONS

1. Solution: 2800 HUF
2. Solution: 70 %
3. Solution: 19
4. Solution: $-7/4$
5. Solution: 10
6. Solution: 46
7. Solution: 2
8. Solution: there is no solution
9. Solution: 2
10. Solution: $x_1 = 1$ and $x_2 = 7$
11. Solution: there is only one solution, $x = -5$
12. Solution: $x = -2, y = 5$
13. Solution: ab
14. Solution: 1
15. Solution: green
16. Solution: A
17. Solution: $R_f =]-\infty; 2]$
18. Solution: 70
19. Solution: Fermont
20. Solution: 700 \$
21. Solution: 6
22. Solution: 25 %
23. Solution: 83,4 %
24. Solution: 2
25. Solution: 3