UANL

UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN

Universidad Autónoma de Nuevo León
Sistema de Nivel Medio Superior
7 Preparatoria

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MATHEMATICS II ACADEMY COORDINATOR: MTRA. ADRIANA I. GARZA CERVANTES
EDUCATIVE PROGRAM: BILINGUAL

NAME OF THE STUDENT:_____

GROUP:_____ R.N._____ SCORE_____

PEER ASSESSED BY: _____

Addition or subtraction of fractions with different denominator

For the addition and subtraction of fractions with different denominators, each fraction must be converted to equivalent fractions (with the same denominator).

		$\frac{1}{4}+\frac{3}{6}$	$\frac{2}{7}+\frac{5}{14}-\frac{3}{10}$
Step 1	Find the least common multiple (lcm) of the denominators.	mcm de 4 y 6 4 | 6 | 2 2 | 3 | 2 1 | 3 | 3 1 | 1 | mcm = 2*2*3 = 12	mcm de 7, 14 y 10 7 | 14 | 10 | 2 7 | 7 | 5 | 5 7 | 7 | 1 | 7 1 | 1 | | mcm = 2*5*7 = 70
Step 2	Convert the fractions to equivalents. Using the result of the LCM as the denominator.	$\frac{1}{4}*\frac{3}{3}=\frac{3}{12}$ $\frac{3}{6}*\frac{2}{2}=\frac{6}{12}$	$\frac{2}{7}*\frac{10}{10}=\frac{20}{70}$ $\frac{5}{14}*\frac{5}{5}=\frac{25}{70}$ $\frac{3}{10}*\frac{7}{7}=\frac{21}{70}$
Step 3	Perform the addition of subtraction of numerators.	$\frac{3}{12}+\frac{6}{12}=\frac{9}{12}$	$\frac{20}{70}+\frac{25}{70}-\frac{21}{70}=\frac{24}{70}$
Step 4	Simplify the result is it is possible.	$\frac{9}{12}=\frac{3}{4}$	$\frac{24}{70}=\frac{12}{35}$

Application problems with fractions

1. On a scale, a weight of 2 1/4 kg is placed on one side and 3/4 kg on the other. How much is left to balance the scale?

Equation Procedure Result

2. Sofia went to get the following products from the supermarket: $1\frac{2}{3}\ Kg$ of tomatoes, $3\frac{1}{2}\ kg$ of onions, $2\frac{4}{3}kg$ of lemons, $5\frac{1}{4}\ kg$ of potatoes. How many kilograms did Sofia buy in total?

Equation Procedure Result

3. Juan, Felipe and Elisa bought a pizza. Juan ate 3/8, Felipe ¼ and Elisa 2/16, what fraction of pizza was left?

Equation Procedure Result

4. A man painted the 3/8 of his house yesterday, and this morning, the fifth part.
a) What fraction of the house has he painted?
b) What fraction does he have left to paint?

Equation Procedure Result

5. One third of water is removed from a water tank and then 2/5 of what was left. If there still are 600 liters, how much water was there at the beginning?

Equation Procedure Result

Application problems of Proportion

6. To buy a lottery ticket, Maria paid $10, Luis $8 and Lupita $7. The ticket was the winner of $30,000 and they decided to distribute it proportionally according to what each one contributed to buy it. How much money is for Luis?

Equation Procedure Result

7. A person will spend 45 days to paint a building. How much time will 9 persons spend to paint the same building?

Equation Procedure Result

8. Carlos bought a toy in the United States that cost him 17.80 dollars. On the day of purchase the dollar had a cost of 15.30 pesos, how much did he pay in pesos for the toy?

Equation Procedure Result

Order of operations

When solving mathematical problems, sometimes we have to carry out several different operations. You have to be careful when carrying out operations, since you have to follow a particular order to give everyone the same result.

The order of operations consists of the rules that tell you what you are going to do first when solving the problem. Then the order of operations is shown.

P	**P**arenthesis and grouping symbols ( ) { } [ ]			
E	**E**xponents 2^3	**R**	**R**adicals $\sqrt{9}$	
M	**M**ultiplication left → $5x3$	**D**	**D**ivision → Right $\frac{9}{3}$	Always Multiplications and Divisions are resolved from Left to Right.
S	**A**ddition left → $8 + 11$	**R**	**S**ubtraction → right $10 - 4$	Always Sums and Subtractions are solved from Left to Right.

Simplify the following operations.

9. $5(3)^4 + (24 \div 8) - 3^4 =$	10. $4^3 - \left[2^2 - \sqrt{16}(8 \div 2 - 2)\right] =$

11. $3^2 - [3(5 - x) - (2 + x)(x - 3)] =$	12. $-3xy - [(x - 3)^2 - 2x(x - y) + 2x^2] =$

Algebraic expressions

13. The height of a triangle is 5 cm larger than its base and its area is 12 cm^2, how much is its base?

Equation Procedure Result

14. A rectangular land measuring 8 m long and 5 m wide will be increased on both sides in the same measure to reach a total area of 180 m^2, how many meters should be increased on each side?

Equation Procedure Result

System of equations

15. Juan paid $120 for a folder and two packages of sheets; while Manuel paid $190 for three packages of sheets and two folders. Find the cost of one folder and one package of sheets.

Equation Procedure Result

16. A book and a magazine cost $ 140. It is known that the cost of the book minus the double of the cost of the magazine is equal to $ 20, how much money do the book and the magazine cost?

Equation Procedure Result

17. Juan bought 4 kg of tomato and 2 kg of beans and paid $ 130.00; while her neighbor bought 3 kg of beans and 1 kg of tomato and paid $ 85.00, what is the price of a kilogram of beans?

Equation	Procedure	Result

Volume, Area and Perimeter

Examples:

Calculate the volume of a room that is 5 m long, 4m wide and 2.5m high.

Equation	Procedure	Result
$V = Lenght * Width * Height$	$V = 5m * 4m * 2.5m$	$V = 50\ m^3$

Calculate the perimeter and area of a square whose side is 8.62 cm.

Equation	Procedure	Result
$P = l + l + l + l$ $P = 4l$	$P = 4(8.62\ cm)$	$P = 34.48\ cm$

18. A pool is 8 m long, 6 m wide and 1.5 m deep. The pool is painted at a rate of $6 per square meter. a) How much it will cost to paint it. b) How many liters of water will be needed to fill it?

Equation	Procedure	Result

19. In a warehouse of dimensions 5 m long, 3 m wide and 2 m high we want to store boxes of dimensions 10 dm (decimeters) long, 6 dm wide and 4 dm high. How many boxes can we store?

Equation	Procedure	Result

20. The height of a cylinder is the same measure as the circumference of the base. And the height measures 125.66 cm. Find:
a) The total area.
b) El volume

Equation	Procedure	Result

21. A flower vase with a cylindrical shape has an internal diameter of 12 cm and its height is 25 cm. We want to fill it up to 2/3 of its capacity. How many liters of water do we need?

Equation Procedure Result

22. What is the volume of a 6 cm cube of edge (arista)?

Equation Procedure Result

23. Painting a wall of 8 m long and 75 cm wide has cost 60 euros. What is the cost of a square meter of painting?

Equation Procedure Result

24. A rectangular farm is 1698 m long and 540 m wide and was planted with wheat. When harvesting each square Decameter of land has produced 7890 kg of wheat. How many kg have been harvested? If the wheat is sold at 0.2 euros per kg, how much money will be obtained?

Equation Procedure Result

25. It is necessary to enclose a rectangular garden, 180 m long and 150 m wide, with wire. The linear meter of fence costs 15 euros. At the same time, it is necessary to spray it with nitrogen fertilizer. The fertilizer manufacturer recommends 25 kg per hectare.

a) Calculate the length of the wire and the cost to enclose the garden.

b) Calculate the amount of nitrogen fertilizer necessary to spray it.

Equation Procedure Result