

Algebra.

What does it mean that $\frac{3}{8} \times \frac{2}{3} = \frac{1}{4}$? It really means that $\frac{1}{4} \div \frac{3}{8} = \frac{2}{3}$ It is easy to see that

$$\frac{1}{4} \times \frac{8}{3} = \frac{1 \times 8}{4 \times 3} = \frac{2}{3}$$

And $\frac{1}{4} \div \frac{2}{3} = \frac{3}{8}$. So

$$\frac{1}{4} \times \frac{3}{2} = \frac{1 \times 3}{4 \times 2} = \frac{3}{8}$$

Let's try to look at this problem differently. If we are saying that $10 \div 2 = 5$ it means that 2 can fit into 10 five times (and $10 \div 5 = 2$ means that 5 can fit into 10 two times.)

Expression $\frac{3}{10} \div \frac{3}{5} = \frac{1}{2}$ means that $\frac{3}{5}$ can fit into $\frac{3}{10}$ only $\frac{1}{2}$ times.



We can see that to multiply 2 fractions one should multiply numerators and denominators. To divide one fraction by another we have to multiply first fraction by the fraction reciprocal to the second fraction. Two fractions are called reciprocal (or inverse) if their product is equal to 1.

$$\frac{3}{5} \times \frac{5}{3} = 1, \quad \frac{a}{b} \times \frac{b}{a} = 1$$

1. What is reciprocal fraction for the fractions:

$$\frac{1}{2}; \frac{6}{7}; \frac{8}{5}; \frac{35}{1000};$$

- 2.

b	c	$b \cdot c$
$\frac{3}{8}$	$\frac{3}{2}$	
$\frac{3}{4}$		$\frac{9}{21}$
	$\frac{2}{3}$	$\frac{16}{21}$

b	c	$b : c$
$\frac{5}{6}$	$\frac{4}{9}$	
$\frac{7}{10}$		$\frac{1}{2}$
	$\frac{5}{4}$	$\frac{2}{5}$

3. Compare two fractions:

$$\frac{2}{5} \dots \frac{4}{5}; \quad \frac{5}{12} \dots \frac{5}{17}; \quad \frac{21}{22} \dots \frac{22}{23}$$

4. Evaluate:

a. $\left(\frac{4}{5} - \frac{11}{15}\right) \cdot \frac{5}{11}$;

b. $1\frac{1}{45} : \left(\frac{8}{25} + \frac{3}{5}\right)$;

c. $\frac{7}{88} \cdot \left(\frac{8}{21} + \frac{8}{7}\right)$;

d. $\left(1\frac{1}{2} - \frac{3}{8}\right) : 7$;

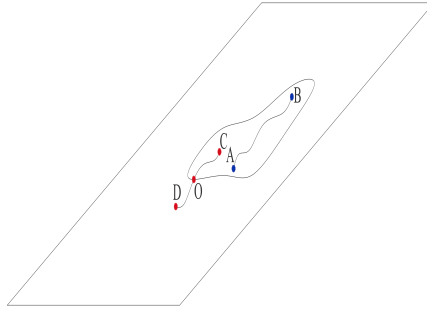
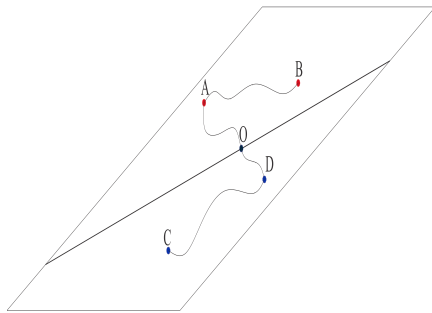
e. $\left(\frac{1}{4} + \frac{7}{12}\right) \cdot \frac{3}{7}$;

f. $\left(1\frac{1}{7} + \frac{5}{14}\right) : \frac{5}{28}$;

5. Grandma made 2 kg of jam. She has several identical jars, each can hold $\frac{3}{5}$ of 1 kg of jam. How many jars does she need?

Geometry. Lines and rays on a plane.

Each straight line divides a plane into two domains. In these domains any two points on one side of the line may be connected without crossing the line itself and any two points on the two different sides of the line can't be connected without crossing the line.



Enclosed area on a plane is the area limited by a closed curved line (or chain of line segments) any 2 points of which can be connected without

crossing the curved line (or series of line segments) and any point inside of the limit can't be connected with any point outside of the limit without crossing the curved line (or chain of line segments).

1. One straight line divides a plane into 2 parts. How many parts do 2 straight lines divide a plane into? Three lines? Find all possible solutions. (*Four lines? Try to find all possible solutions.)
2. Draw 2 rays so that they divide a plane into (use ruler)
 - a. 2 parts
 - b. Do not divide a plane
3. Draw 3 rays so that they divide a plane into (use ruler)
 - a. 3 parts
 - b. 4 parts