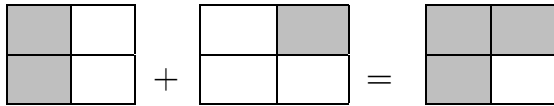
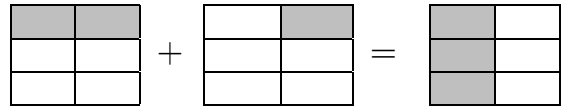


分母の違う分数を足す計算

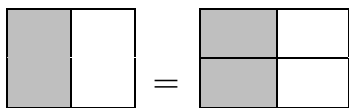
次の図と式を完成しなさい。



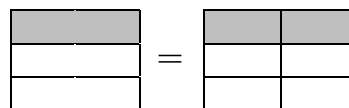
$$\frac{2}{4} + \frac{1}{4} = \square$$



$$\frac{2}{6} + \frac{1}{6} = \square$$

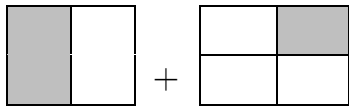


$$\frac{1}{2} = \square$$



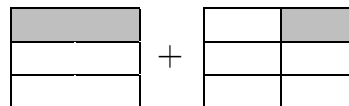
$$\frac{1}{3} = \square$$

それゆえ



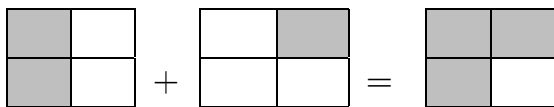
$$\frac{1}{2} + \frac{1}{4} \text{ は}$$

それゆえ



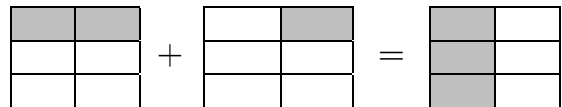
$$\frac{1}{3} + \frac{1}{6} \text{ は}$$

上に戻って

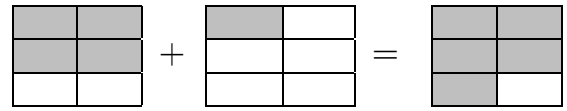
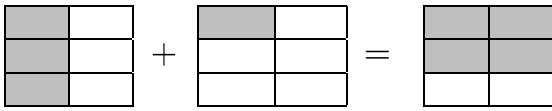


$$\square + \square = \square$$

上に戻って

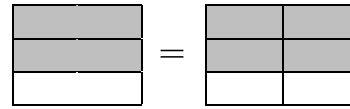
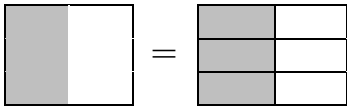


$$\square + \square = \square$$



$$\frac{3}{6} + \frac{1}{6} = \text{yellow square}$$

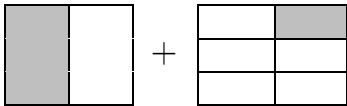
$$\frac{4}{6} + \frac{1}{6} = \text{yellow square}$$



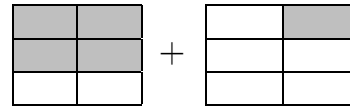
$$\frac{1}{2} = \text{yellow square}$$

$$\frac{2}{3} = \text{yellow square}$$

それゆえ



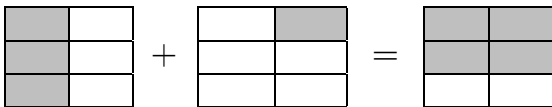
それゆえ



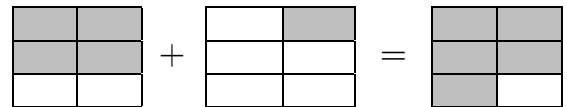
$$\frac{1}{2} + \frac{1}{6} \text{ は}$$

$$\frac{2}{3} + \frac{1}{6} \text{ は}$$

上に戻って

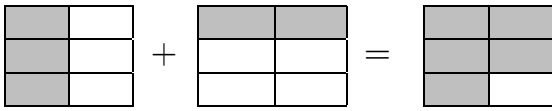


上に戻って

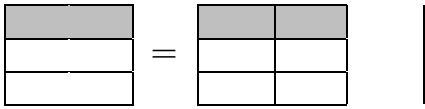
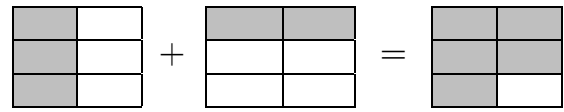
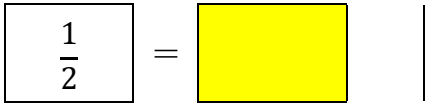
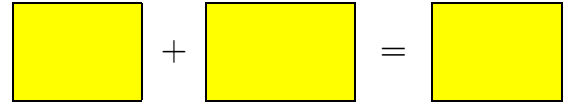
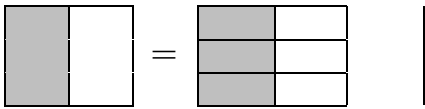
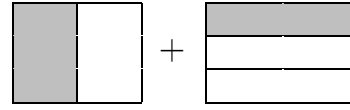
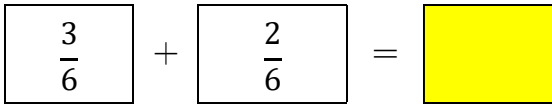


$$\text{yellow square} + \text{yellow square} = \text{yellow square}$$

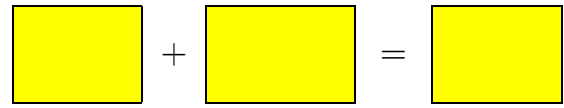
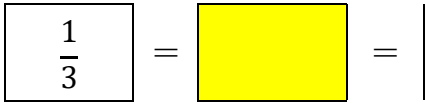
$$\text{yellow square} + \text{yellow square} = \text{yellow square}$$



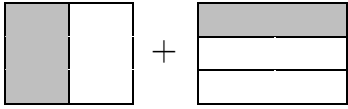
$$\frac{1}{2} + \frac{1}{3} \text{ は}$$



$$\frac{1}{2} + \frac{1}{3} \text{ は}$$



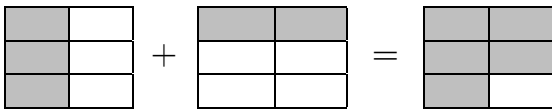
それゆえ



$$\frac{1}{2} + \frac{1}{3} \text{ は}$$

$$\frac{1}{3} + \frac{1}{2} \text{ は}$$

上に戻って



以上のことをよく理解したら
次の問題に答えなさい。

分母の違う分数を足す計算

次の図と式を完成しなさい。

$$\begin{array}{|c|c|} \hline & \\ \hline & \\ \hline \end{array} + \begin{array}{|c|c|} \hline & \\ \hline & \\ \hline \end{array} = \begin{array}{|c|c|} \hline & \\ \hline & \\ \hline \end{array}$$

$$\begin{array}{|c|} \hline \frac{2}{4} \\ \hline \end{array} + \begin{array}{|c|} \hline \frac{1}{4} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{黄色} \\ \hline \end{array}$$

$$\begin{array}{|c|c|} \hline & \\ \hline & \\ \hline \end{array} = \begin{array}{|c|c|} \hline & \\ \hline & \\ \hline \end{array}$$

$$\begin{array}{|c|} \hline \frac{1}{2} \\ \hline \end{array} = \begin{array}{|c|} \hline \frac{\quad}{4} \\ \hline \end{array}$$

それゆえ

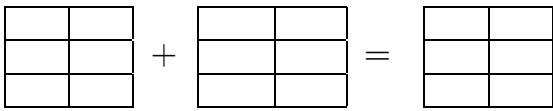
$$\begin{array}{|c|c|} \hline & \\ \hline & \\ \hline \end{array} + \begin{array}{|c|c|} \hline & \\ \hline & \\ \hline \end{array}$$

$$\begin{array}{|c|} \hline \frac{1}{2} \\ \hline \end{array} + \begin{array}{|c|} \hline \frac{1}{4} \\ \hline \end{array} \text{は}$$

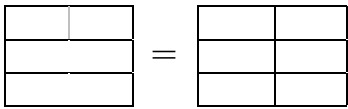
上に戻って

$$\begin{array}{|c|c|} \hline & \\ \hline & \\ \hline \end{array} + \begin{array}{|c|c|} \hline & \\ \hline & \\ \hline \end{array} = \begin{array}{|c|c|} \hline & \\ \hline & \\ \hline \end{array}$$

$$\begin{array}{|c|} \hline \text{黄色} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{黄色} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{黄色} \\ \hline \end{array}$$

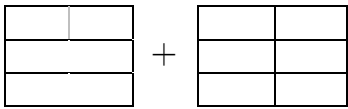


$$\frac{2}{6} + \frac{1}{6} = \text{yellow square}$$



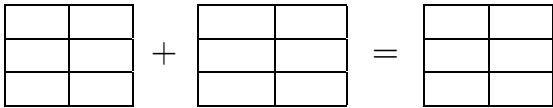
$$\frac{1}{3} = \frac{2}{6}$$

それゆえ

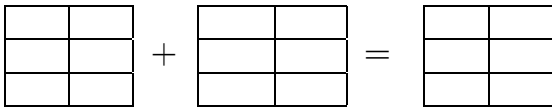


$$\frac{1}{3} + \frac{1}{6} \text{ は}$$

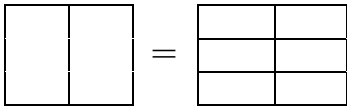
上に戻って



$$\text{yellow square} + \text{yellow square} = \text{yellow square}$$

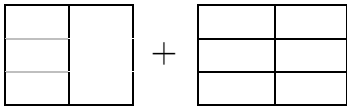


$$\frac{3}{6} + \frac{1}{6} = \text{[Yellow Box]}$$



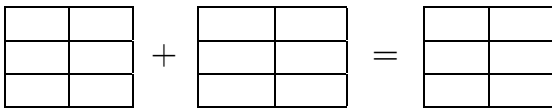
$$\frac{1}{2} = \frac{\text{[Yellow Box]}}{6}$$

それゆえ

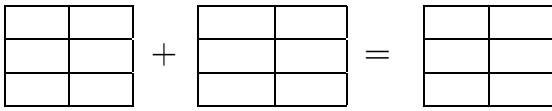


$$\frac{1}{2} + \frac{1}{6} \text{ は}$$

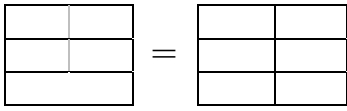
上に戻って



$$\text{[Yellow Box]} + \text{[Yellow Box]} = \text{[Yellow Box]}$$

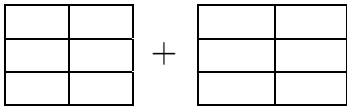


$$\frac{4}{6} + \frac{1}{6} = \text{[Yellow Box]}$$



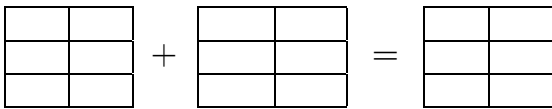
$$\frac{2}{3} = \frac{\quad}{6}$$

それゆえ

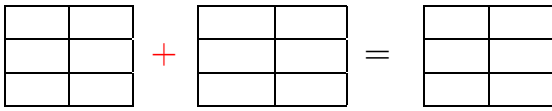


$$\frac{2}{3} + \frac{1}{6} \text{ は}$$

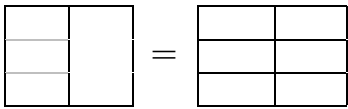
上に戻って



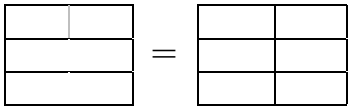
$$\text{[Yellow Box]} + \text{[Yellow Box]} = \text{[Yellow Box]}$$



$$\frac{3}{6} + \frac{2}{6} = \text{yellow square}$$

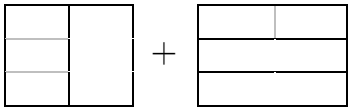


$$\frac{1}{2} = \frac{3}{6}$$



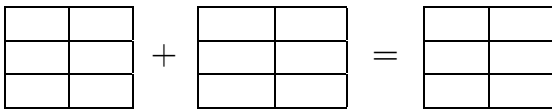
$$\frac{1}{3} = \frac{2}{6}$$

それゆえ



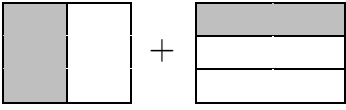
$$\frac{1}{2} + \frac{1}{3} \text{ は}$$


上に戻って

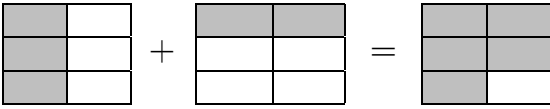


$$\text{yellow square} + \text{yellow square} = \text{yellow square}$$

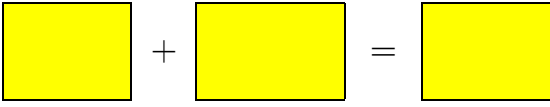
$$\frac{1}{2} + \frac{1}{3} \text{ は}$$



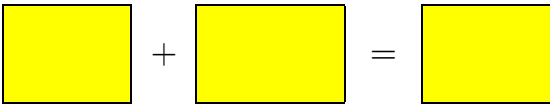
$$\frac{3}{6} + \frac{2}{6} =$$




$$\frac{1}{2} + \frac{1}{3} \text{ は}$$



$$\frac{1}{3} + \frac{1}{2} \text{ は}$$



$\frac{2}{4}$	+	$\frac{1}{4}$	=	
---------------	---	---------------	---	--

$\frac{1}{2}$	+	$\frac{1}{4}$	=	
---------------	---	---------------	---	--

$\frac{1}{2}$	+	$\frac{1}{6}$	=	
---------------	---	---------------	---	--

$\frac{1}{3}$	+	$\frac{1}{6}$	=	
---------------	---	---------------	---	--

$\frac{1}{3}$	+	$\frac{1}{9}$	=	
---------------	---	---------------	---	--

$\frac{1}{3}$	+	$\frac{1}{12}$	=	
---------------	---	----------------	---	--

$\frac{2}{3}$	+	$\frac{1}{12}$	=	
---------------	---	----------------	---	--

$\frac{1}{3}$	+	$\frac{2}{9}$	=	
---------------	---	---------------	---	--

$\frac{2}{3}$	+	$\frac{1}{6}$	=	
---------------	---	---------------	---	--

$\frac{2}{4}$	-	$\frac{1}{4}$	=	
---------------	---	---------------	---	--

$\frac{1}{2}$	-	$\frac{1}{4}$	=	
---------------	---	---------------	---	--

$\frac{1}{2}$		-	$\frac{1}{6}$	=	
---------------	--	---	---------------	---	--

$\frac{1}{3}$	-	$\frac{1}{6}$	=	
---------------	---	---------------	---	--

$\frac{1}{3}$	-	$\frac{1}{9}$	=	
---------------	---	---------------	---	--

$\frac{1}{3}$	-	$\frac{1}{12}$	=	
---------------	---	----------------	---	--

$\frac{2}{3}$	-	$\frac{1}{12}$	=	
---------------	---	----------------	---	--

$\frac{1}{3}$	-	$\frac{2}{9}$	=	
---------------	---	---------------	---	--

$\frac{2}{3}$	-	$\frac{1}{6}$	=	
---------------	---	---------------	---	--

$\frac{1}{2}$	+	$\frac{1}{3}$	=	
---------------	---	---------------	---	--

$\frac{1}{2}$	+	$\frac{1}{5}$	=	
---------------	---	---------------	---	--

$\frac{1}{3}$	+	$\frac{1}{2}$	=	
---------------	---	---------------	---	--

$\frac{1}{3}$	+	$\frac{1}{4}$	=	
---------------	---	---------------	---	--

$\frac{1}{3}$	+	$\frac{1}{5}$	=	
---------------	---	---------------	---	--

$\frac{2}{3}$	+	$\frac{1}{4}$	=	
---------------	---	---------------	---	--

$\frac{1}{3}$	+	$\frac{1}{5}$	=	
---------------	---	---------------	---	--

$\frac{2}{3}$	+	$\frac{1}{8}$	=	
---------------	---	---------------	---	--

$\frac{1}{2}$	-	$\frac{1}{3}$	=	
---------------	---	---------------	---	--

$\frac{1}{2}$	-	$\frac{1}{5}$	=	
---------------	---	---------------	---	--

$\frac{1}{3}$	-	$\frac{1}{2}$	=	
---------------	---	---------------	---	--

$\frac{1}{3}$	-	$\frac{1}{4}$	=	
---------------	---	---------------	---	--

$\frac{1}{3}$	-	$\frac{1}{5}$	=	
---------------	---	---------------	---	--

$\frac{2}{3}$	-	$\frac{1}{4}$	=	
---------------	---	---------------	---	--

$\frac{1}{3}$	-	$\frac{1}{5}$	=	
---------------	---	---------------	---	--

$\frac{2}{3}$	-	$\frac{1}{8}$	=	
---------------	---	---------------	---	--

最小公倍数と通分

最小公倍数には3つの型があります。

2と3、2と5、2と7、
3と4、3と5、3と7
のように、

2つの数の積

が最小公倍数になる場合。

	$\frac{1}{2}$	+	$\frac{1}{3}$
=	$\frac{1}{6}$	+	$\frac{1}{6}$

	$\frac{1}{2}$	+	$\frac{1}{5}$
=	$\frac{1}{10}$	+	$\frac{1}{10}$

	$\frac{1}{2}$	+	$\frac{1}{7}$
=	$\frac{1}{14}$	+	$\frac{1}{14}$

	$\frac{1}{3}$	+	$\frac{1}{4}$
=	$\frac{1}{12}$	+	$\frac{1}{12}$

	$\frac{1}{3}$	+	$\frac{1}{5}$
=	$\frac{1}{15}$	+	$\frac{1}{15}$

2と4、2と6、2と8、
3と6、3と9、3と12
のように、

大きい方の数が
小さい方の数の
倍数

になっている場合。

	$\frac{1}{2}$	+	$\frac{1}{4}$
=	$\frac{1}{4}$	+	$\frac{1}{4}$

	$\frac{1}{2}$	+	$\frac{1}{6}$
=	$\frac{1}{6}$	+	$\frac{1}{6}$

	$\frac{1}{2}$	+	$\frac{1}{8}$
=	$\frac{1}{8}$	+	$\frac{1}{8}$

	$\frac{1}{3}$	+	$\frac{1}{6}$
=	$\frac{1}{6}$	+	$\frac{1}{6}$

4と6、4と10、
6と9、6と15、
6と8、6と10
のように、

2つの数に
公約数がある時
2つの数の積を
最大公約数で
わって得られる

場合。

	$\frac{1}{4}$	+	$\frac{1}{6}$
=	$\frac{1}{12}$	+	$\frac{1}{12}$

	$\frac{1}{4}$	+	$\frac{1}{10}$
=	$\frac{1}{20}$	+	$\frac{1}{20}$

	$\frac{1}{6}$	+	$\frac{1}{9}$
=	$\frac{1}{18}$	+	$\frac{1}{18}$

	$\frac{1}{6}$	+	$\frac{1}{8}$
=	$\frac{1}{24}$	+	$\frac{1}{24}$

分母の異なる分数の足し算の場合

何故、
分母を同じにしなければならないのか。

それは、
数学でいうところの足し算とは、
同じ大きさの個数を数えるのが
原則だからです。

例えば、
像1頭と、ネズミ1匹を足して
2つの何とか、というのは
意味をなさないのです。

例えば、
千円札1枚と一万円札1枚とを足して
2枚のお札ではありますが、
その足した結果の2には
あまり意味がありません。
だから、
千円を、一円が1000個、
一万円を、一円が10000個とし、
合わせて、一円が11000個、
とするわけです。

あるいは、
1万円を千円が10個
千円が1個
合わせて千円が11個
などとします。

例えば、
3百メートルと
3キロメートルを合わせて
『6何とか』は意味がありません。

$3 \text{ 百 m} = 1 \text{ m} \times 300$
 $3 \text{ キロ m} = 1 \text{ m} \times 3000$
合わせて $1 \text{ m} \times 3300 = 3300 \text{ m}$
とするか、

$3 \text{ 百 m} = 1 \text{ k m} \times 0.3$
 $3 \text{ キロ m} = 1 \text{ k m} \times 3$
合わせて $1 \text{ k m} \times 3.3 = 3.3 \text{ k m}$
とするかです。

いずれにしても、
単位の違う、つまり
大きさの異なる物の足し算は
単位をそろえてからでない
意味が無いのです。

引き算についても同じです。

	$\frac{1}{2}$	-	$\frac{1}{3}$
=	$\frac{1}{6}$	-	$\frac{1}{6}$

	$\frac{1}{2}$	-	$\frac{1}{4}$
=	$\frac{1}{4}$	-	$\frac{1}{4}$

	$\frac{1}{4}$	-	$\frac{1}{6}$
=	$\frac{1}{12}$	-	$\frac{1}{12}$

	$\frac{1}{2}$	-	$\frac{1}{5}$
=	$\frac{1}{10}$	-	$\frac{1}{10}$

	$\frac{1}{2}$	-	$\frac{1}{6}$
=	$\frac{1}{6}$	-	$\frac{1}{6}$

	$\frac{1}{4}$	-	$\frac{1}{10}$
=	$\frac{1}{20}$	-	$\frac{1}{20}$

	$\frac{1}{2}$	-	$\frac{1}{7}$
=	$\frac{1}{14}$	-	$\frac{1}{14}$

	$\frac{1}{2}$	-	$\frac{1}{8}$
=	$\frac{1}{8}$	-	$\frac{1}{8}$

	$\frac{1}{6}$	-	$\frac{1}{9}$
=	$\frac{1}{18}$	-	$\frac{1}{18}$

	$\frac{1}{3}$	-	$\frac{1}{4}$
=	$\frac{1}{12}$	-	$\frac{1}{12}$

	$\frac{1}{3}$	-	$\frac{1}{6}$
=	$\frac{1}{6}$	-	$\frac{1}{6}$

	$\frac{1}{6}$	-	$\frac{1}{8}$
=	$\frac{1}{24}$	-	$\frac{1}{24}$

	$\frac{1}{3}$	-	$\frac{1}{5}$
=	$\frac{1}{15}$	-	$\frac{1}{15}$

	$\frac{1}{3}$	-	$\frac{1}{9}$
=	$\frac{1}{9}$	-	$\frac{1}{9}$

	$\frac{1}{6}$	-	$\frac{1}{10}$
=	$\frac{1}{30}$	-	$\frac{1}{30}$

	$\frac{1}{3}$	-	$\frac{1}{12}$
=	$\frac{1}{12}$	-	$\frac{1}{12}$

	$\frac{1}{6}$	-	$\frac{1}{15}$
=	$\frac{1}{30}$	-	$\frac{1}{30}$

	$\frac{1}{6}$	-	$\frac{1}{18}$
=	$\frac{1}{18}$	-	$\frac{1}{18}$

	$\frac{1}{8}$	-	$\frac{1}{12}$
=	$\frac{1}{24}$	-	$\frac{1}{24}$

