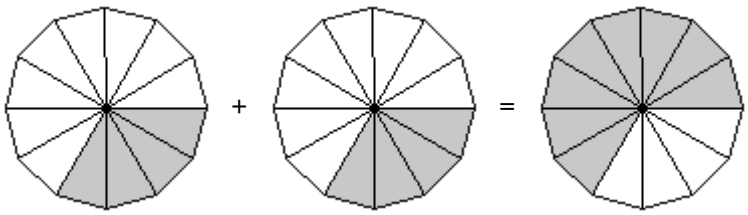
Answers

(1) $\frac{4}{12} + \frac{4}{12} = \frac{8}{12}$



Step 1

A proper fraction represents a part of a whole. In the given figures, each circle represents one whole thing, and has been divided into 12 equal parts.

Step 2

The fact that only 4 parts are shaded in the first circle tells us that it represents the fraction $\frac{4}{12}$ or â??4 parts out of a thing that has been broken into 12 partsâ??.

Step 3

Similarly the second circle represents â??4 parts of a thing that has been broken into 12 partsâ??.

Step 4

4 parts plus 4 parts of something that has been broken into 12 parts will be same as â??8 parts out of 12 â??, or $\frac{8}{12}$.

Step 5

So our answer is $\frac{8}{12}$ and this can be represented using the third circle by shading 8 parts out of 12.

(2) 4

Step 1

It is given that sum of fractions is equal to 1. Therefore, numerator and denominator of the sum should be equal.

Step 2

On addition of fraction we get:

$$\frac{\triangle}{11} + \frac{3}{11} + \frac{2}{11} + \frac{2}{11} = \frac{\triangle + 3 + 2 + 2}{11}$$

Step 3

As we know that numerator and denominator of sum are equal:

$\triangle + 3 + 2 + 2 = 11$

Step 4

Now, we can be seen that the above relation is satisfied only when $\triangle$ is equal to 4.

Therefore, $\triangle = 4$

(3) $\frac{6}{13}$

Step 1

Let us count all fruits in the given box. There are total 13 fruits, out of which 6 are apples.

Step 2

Therefore, fraction of apples $= \frac{\text{Number of apples}}{\text{Total number of fruits}}$

$= \frac{6}{13}$

(4) $\frac{8}{12}$

Step 1

$\frac{1}{12}$ of the farm is planted with bananas.

$\frac{3}{12}$ of the farm is planted with mangoes.

$\frac{4}{12}$ of the farm is planted with apples.

Step 2

Fraction of Maciej farm that is planted with fruits = $\frac{1}{12} + \frac{3}{12} + \frac{4}{12} = \frac{8}{12}$.

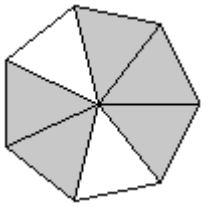
(5) 6

Step 1

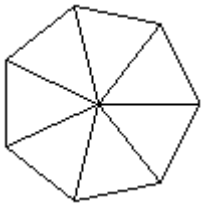
We know that a fraction means a part of the whole where the numerator of the fraction represents the number of parts we have and the denominator represents the total number of parts the figure is divided into.

Step 2

In the given figure, 6 out of 12 parts are shaded.
Therefore, the numerator of the fraction representing the shaded part is **6**.

(6) A) 

Step 1



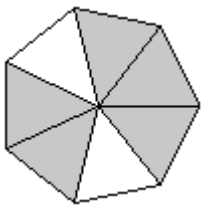
If we look at the picture carefully, we will notice that the picture is divided into 7 equal parts.

Step 2

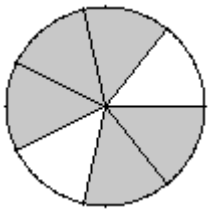
Now to show the fraction $\frac{5}{7}$, we have to shade any 5 parts of the picture out of the 7 parts.

Step 3

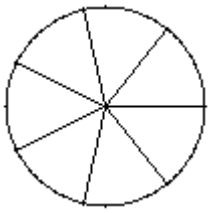
Therefore, the shaded picture looks like:



B)



Step 1



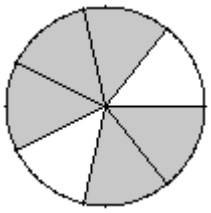
If we look at the picture carefully, we will notice that the picture is divided into 7 equal parts.

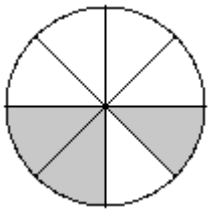
Step 2

Now to show the fraction $\frac{5}{7}$, we have to shade any 5 parts of the picture out of the 7 parts.

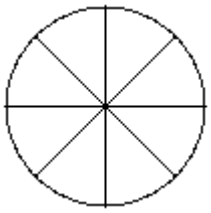
Step 3

Therefore, the shaded picture looks like:



C) 

Step 1



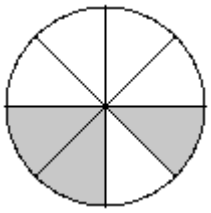
If we look at the picture carefully, we will notice that the picture is divided into 8 equal parts.

Step 2

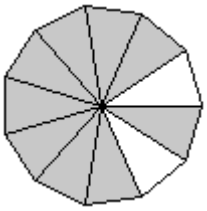
Now to show the fraction $\frac{3}{8}$, we have to shade any 3 parts of the picture out of the 8 parts.

Step 3

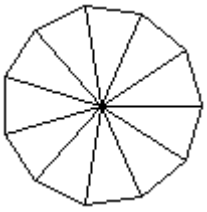
Therefore, the shaded picture looks like:



D)



Step 1



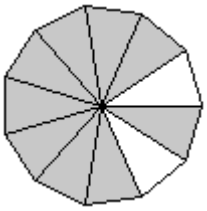
If we look at the picture carefully, we will notice that the picture is divided into 11 equal parts.

Step 2

Now to show the fraction $\frac{9}{11}$, we have to shade any 9 parts of the picture out of the 11 parts.

Step 3

Therefore, the shaded picture looks like:



(7) $\frac{3}{14}$ m

Step 1

According to the question, the perimeter of the square field is $\frac{6}{7}$ m and we have to calculate the length of each side.

Step 2

We know that the perimeter of a square = 4 × side of the square
So, to calculate the side of the given square, we have to divide the perimeter by 4.
Side of the square = Perimeter of the square ÷ 4

$= \frac{6}{7} \div 4$

$= \frac{6}{7} \times \frac{1}{4} = \frac{6}{28}$

Step 3

To convert the fraction into the simplest form, let us divide the numerator and denominator of the above fraction by their H.C.F, that is 2.

$$\frac{6}{28} = \frac{\frac{6}{2}}{\frac{28}{2}} = \frac{3}{14}$$

Step 4

Hence, the length of each side of the square field is $\frac{3}{14}$ **m.**

(8) 1

Step 1

According to the question, we have to divide $\frac{3}{4}$ by $\frac{12}{16}$. In order to do this, we have to multiply $\frac{3}{4}$ by the reciprocal of $\frac{12}{16}$.

Reciprocal of $\frac{12}{16} = \frac{16}{12}$

So, $\frac{3}{4} \div \frac{12}{16} = \frac{3}{4} \times \frac{16}{12}$

Step 2

Multiplying the numerators together and the denominators together, we get,

$\frac{3}{4} \times \frac{16}{12} = \frac{48}{48}$

Step 3

To convert the fraction into the simplest form, let us divide the numerator and denominator of the above fraction by their H.C.F, that is 48.

$\frac{48}{48} = \frac{\frac{48}{48}}{\frac{48}{48}} = 1$

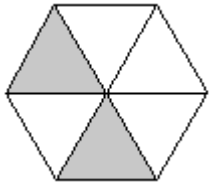
Step 4

Hence, we get the answer as **1**.

(9) $\frac{2}{6}$

Step 1

According to the question, we have been asked to find the fraction of the shaded part of the following image:



Step 2

Total number of equal parts in the image = 6
As we can see, there are 2 shaded parts in the image.

Step 3

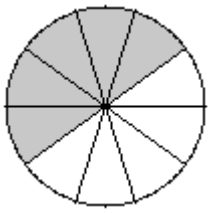
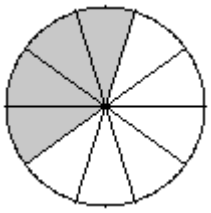
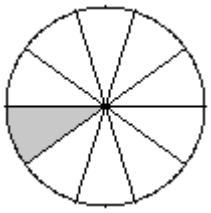
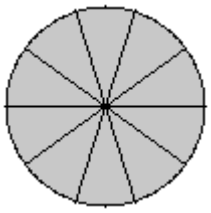
$$\text{Fraction of the image that is shaded} = \frac{\text{Number of shaded parts}}{\text{Total number of parts of the image}}$$

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

Step 4

Hence, the fraction of the image that is shaded is $\frac{2}{6}$.

(10) $\frac{5}{10} + \frac{4}{10} + \frac{1}{10} = \frac{10}{10}$

 and  and  makes 

Step 1

A proper fraction represents a part of a whole. In the given figures, each circle represents one whole thing, and has been divided into 10 equal parts.

Step 2

The fact that only 5 parts are shaded in the first circle tells us that it represents the fraction $\frac{5}{10}$ or '5 parts of a thing that has been broken into 10 parts'.

Step 3

Similarly, the second circle represents '4 parts of a thing that has been broken into 10 parts'.

Step 4

Similarly, the third circle represents '1 part of a thing that has been broken into 10 parts'.

Step 5

5 parts plus 4 parts plus 1 part of something that has been broken into 10 parts will be same as '10 parts out of 10', or $\frac{10}{10}$.

Step 6

So our answer is $\frac{10}{10}$ and this can be represented using the third circle by shading 10 parts out of 10.

(11) A) $\frac{59}{40} - \frac{7}{8} = \frac{\boxed{3}}{\boxed{5}}$

Step 1

The given fractions are unlike fractions, since their denominators are different.

Step 2

To add two unlike fractions we should take LCM of their denominators.

Step 3

The LCM of the denominators 40 and 8 comes out to be 40 itself, which is the denominator for the new fraction.

Step 4

This means the new fraction will be:

$$\frac{59}{40} - \frac{7}{8} = \frac{59 - (7 \times 5)}{40} = \frac{24}{40}$$

Step 5

In order to convert the fraction $\frac{24}{40}$ in the simplest/lowest form, let us divide both the numerator and denominator by their HCF.

Step 6

The HCF of 24 and 40 is 8.

Step 7

Hence, the simplest/lowest form of $\frac{24}{40}$ is $\frac{\frac{24}{8}}{\frac{40}{8}} = \frac{3}{5}$

B) $\frac{19}{8} - \frac{4}{2} = \frac{\boxed{3}}{\boxed{8}}$

Step 1

The given fractions are unlike fractions, since their denominators are different.

Step 2

To add two unlike fractions we should take LCM of their denominators.

Step 3

The LCM of the denominators 8 and 2 comes out to be 8 itself, which is the denominator for the new fraction.

Step 4

This means the new fraction will be:

$$\frac{19}{8} - \frac{4}{2} = \frac{19 - (4 \times 4)}{8} = \frac{3}{8}$$

Step 5

In order to convert the fraction $\frac{3}{8}$ in the simplest/lowest form, let us divide both the numerator and denominator by their HCF.

Step 6

The HCF of 3 and 8 is 1.

Step 7

Hence, the simplest/lowest form of $\frac{3}{8}$ is $\frac{\frac{3}{1}}{\frac{8}{1}} = \frac{3}{8}$

C) $\frac{16}{12} - \frac{4}{4} = \frac{\boxed{1}}{\boxed{3}}$

Step 1

The given fractions are unlike fractions, since their denominators are different.

Step 2

To add two unlike fractions we should take LCM of their denominators.

Step 3

The LCM of the denominators 12 and 4 comes out to be 12 itself, which is the denominator for the new fraction.

Step 4

This means the new fraction will be:

$$\frac{16}{12} - \frac{4}{4} = \frac{16 - (4 \times 3)}{12} = \frac{4}{12}$$

Step 5

In order to convert the fraction $\frac{4}{12}$ in the simplest/lowest form, let us divide both the numerator and denominator by their HCF.

Step 6

The HCF of 4 and 12 is 4.

Step 7

Hence, the simplest/lowest form of $\frac{4}{12}$ is $\frac{\frac{4}{4}}{\frac{12}{4}} = \frac{1}{3}$

D) $\frac{45}{21} - \frac{1}{7} = \frac{\boxed{2}}{\boxed{1}}$

Step 1

The given fractions are unlike fractions, since their denominators are different.

Step 2

To add two unlike fractions we should take LCM of their denominators.

Step 3

The LCM of the denominators 21 and 7 comes out to be 21 itself, which is the denominator for the new fraction.

Step 4

This means the new fraction will be:

$$\frac{45}{21} - \frac{1}{7} = \frac{45 - (1 \times 3)}{21} = \frac{42}{21}$$

Step 5

In order to convert the fraction $\frac{42}{21}$ in the simplest/lowest form, let us divide both the numerator and denominator by their HCF.

Step 6

The HCF of 42 and 21 is 21.

Step 7

Hence, the simplest/lowest form of $\frac{42}{21}$ is $\frac{\frac{42}{21}}{\frac{21}{21}} = 2$

E) $\frac{32}{12} - \frac{7}{6} = \frac{\boxed{3}}{\boxed{2}}$

Step 1

The given fractions are unlike fractions, since their denominators are different.

Step 2

To add two unlike fractions we should take LCM of their denominators.

Step 3

The LCM of the denominators 12 and 6 comes out to be 12 itself, which is the denominator for the new fraction.

Step 4

This means the new fraction will be:

$$\frac{32}{12} - \frac{7}{6} = \frac{32 - (7 \times 2)}{12} = \frac{18}{12}$$

Step 5

In order to convert the fraction $\frac{18}{12}$ in the simplest/lowest form, let us divide both the numerator and denominator by their HCF.

Step 6

The HCF of 18 and 12 is 6.

Step 7

Hence, the simplest/lowest form of $\frac{18}{12}$ is $\frac{\frac{18}{6}}{\frac{12}{6}} = \frac{3}{2}$

F) $\frac{65}{42} - \frac{5}{7} = \frac{\boxed{5}}{\boxed{6}}$

Step 1

The given fractions are unlike fractions, since their denominators are different.

Step 2

To add two unlike fractions we should take LCM of their denominators.

Step 3

The LCM of the denominators 42 and 7 comes out to be 42 itself, which is the denominator for the new fraction.

Step 4

This means the new fraction will be:

$$\frac{65}{42} - \frac{5}{7} = \frac{65 - (5 \times 6)}{42} = \frac{35}{42}$$

Step 5

In order to convert the fraction $\frac{35}{42}$ in the simplest/lowest form, let us divide both the numerator and denominator by their HCF.

Step 6

The HCF of 35 and 42 is 7.

Step 7

Hence, the simplest/lowest form of $\frac{35}{42}$ is $\frac{\frac{35}{7}}{\frac{42}{7}} = \frac{5}{6}$

(12) A) $\frac{10}{12} - \frac{6}{12} = \frac{4}{12}$

Step 1

The given fractions are like fractions as their denominators are same.

Step 2

We know that we can directly add/subtract the numerators of like fractions and the denominator will remain the same.

Step 3

This means the new fraction will be:

$\frac{10}{12} - \frac{6}{12} = \frac{10 - 6}{12}$, or $\frac{4}{12}$

B) $\frac{8}{10} - \frac{6}{10} = \frac{2}{10}$

Step 1

The given fractions are like fractions as their denominators are same.

Step 2

We know that we can directly add/subtract the numerators of like fractions and the denominator will remain the same.

Step 3

This means the new fraction will be:

$\frac{8}{10} - \frac{6}{10} = \frac{8 - 6}{10}$, or $\frac{2}{10}$

C) $\frac{6}{9} - \frac{2}{9} = \frac{4}{9}$

Step 1

The given fractions are like fractions as their denominators are same.

Step 2

We know that we can directly add/subtract the numerators of like fractions and the denominator will remain the same.

Step 3

This means the new fraction will be:

$\frac{6}{9} - \frac{2}{9} = \frac{6 - 2}{9}$, or $\frac{4}{9}$

D) $\frac{6}{11} - \frac{3}{11} = \frac{3}{11}$

Step 1

The given fractions are like fractions as their denominators are same.

Step 2

We know that we can directly add/subtract the numerators of like fractions and the denominator will remain the same.

Step 3

This means the new fraction will be:

$\frac{6}{11} - \frac{3}{11} = \frac{6 - 3}{11}$, or $\frac{3}{11}$

E) $\frac{8}{10} - \frac{5}{10} = \frac{3}{10}$

Step 1

The given fractions are like fractions as their denominators are same.

Step 2

We know that we can directly add/subtract the numerators of like fractions and the denominator will remain the same.

Step 3

This means the new fraction will be:

$\frac{8}{10} - \frac{5}{10} = \frac{8 - 5}{10}$, or $\frac{3}{10}$

F) $\frac{4}{9} - \frac{1}{9} = \frac{3}{9}$

Step 1

The given fractions are like fractions as their denominators are same.

Step 2

We know that we can directly add/subtract the numerators of like fractions and the denominator will remain the same.

Step 3

This means the new fraction will be:

$\frac{4}{9} - \frac{1}{9} = \frac{4 - 1}{9}$, or $\frac{3}{9}$

(13) like

The fractions who have the same denominator are called **like** fractions.

(14) improper

A fraction in which the denominator is smaller than the numerator is called an improper fraction.

(15) >

Step 1

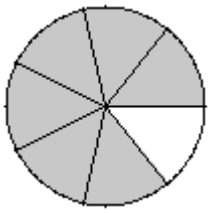
The above question is about comparing two unlike fractions. Fractions having different denominators are called unlike fractions.

Step 2

Let us understand the comparison of two unlike fractions (i.e. $\frac{6}{7}$ and $\frac{3}{4}$) through a simple illustration using a circle.

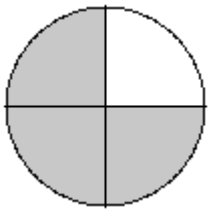
Step 3

Let us take a circle and divide the circle into 7 equal parts. The shaded region in the circle represents $\frac{6}{7}$ of a circle.



Step 4

Similarly, let us divide the same circle into 4 equal parts. The shaded region in the circle represents $\frac{3}{4}$ of a circle.



Step 5

Thus, from the above illustrations we can infer that $\frac{6}{7}$ is greater than $\frac{3}{4}$.