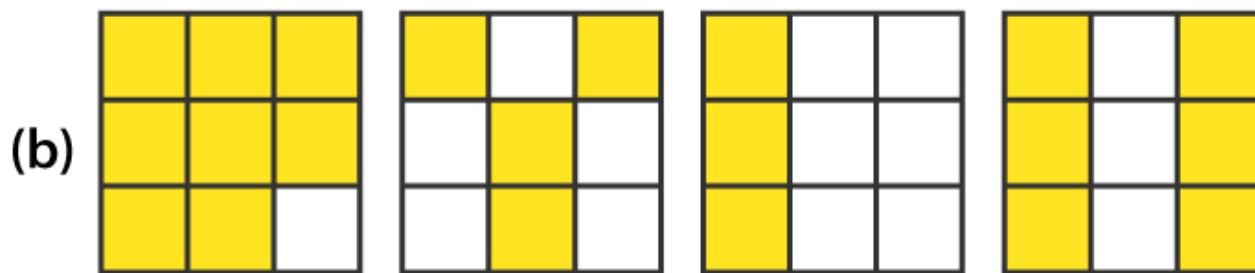
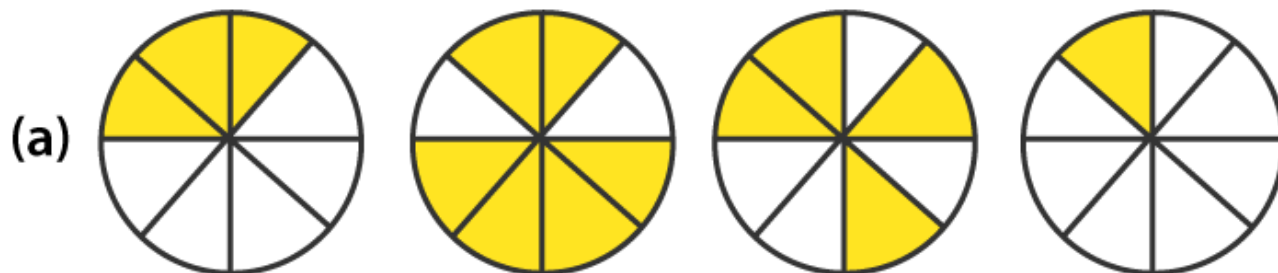


EXERCISE 7.4

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1. Write shaded portion as fraction. Arrange them in ascending and descending order using correct sign ‘<’ between the fractions:



(c) Show $2/6$, $4/6$, $8/6$ and $6/6$ on the number line. Put appropriate signs between the fractions given.

$$5/6 \square 2/6, 3/6 \square 0, 1/6 \square 6/6, 8/6 \square 5/6$$

Solutions:

(a) First circle shows 3 shaded parts out of 8 equal parts. Hence, the fraction is $3/8$

Second circle shows 6 shaded parts out of 8 equal parts. Hence, the fraction is $6/8$

Third circle shows 4 shaded parts out of 8 equal parts. Hence, the fraction is $4/8$

Fourth circle shows 1 shaded parts out of 8 equal parts. Hence, the fraction is $1/8$

The arranged fractions are:

$$1/8 < 3/8 < 4/8 < 6/8$$

(b) First square shows 8 shaded parts out of 9 equal parts. Hence, the fraction is $8/9$

Second square shows 4 shaded parts out of 9 equal parts. Hence, the fraction is $4/9$

Third square shows 3 shaded parts out of 9 equal parts. Hence, the fraction is $3/9$

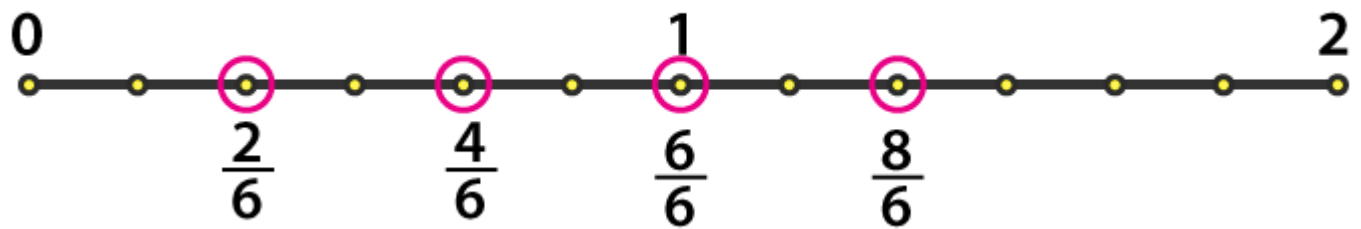
Fourth square shows 6 shaded parts out of 9 equal parts. Hence, the fraction is $6/9$

The arranged fractions are:

$$3/9 < 4/9 < 6/9 < 8/9$$

(c) Each unit length should be divided into 6 equal parts to represent the fractions $2/6$, $4/6$, $8/6$ and

$6/6$ on number line. These fractions can be represented as follows:



$$5/6 > 2/6$$

$$3/6 > 0$$

$$1/6 < 6/6$$

$$8/6 > 5/6$$

2. Compare the fractions and put an appropriate sign.

(a) $3/6 \square 5/6$

(b) $1/7 \square 1/4$

(c) $4/5 \square 5/5$

(d) $3/5 \square 3/7$

Solutions:

(a) Here both fractions have same denominators. So, the fraction with greater numerator is the highest factor

$$\therefore 3/6 < 5/6$$

(b) Multiply by 4

$$1/7 = (1 \times 4) / (7 \times 4)$$

$$= 4/28$$

Multiply by 7

$$1/4 = (1 \times 7) / (4 \times 7)$$

$$= 7/28$$

Here $4 < 7$

$$\therefore 1/7 < 1/4$$

(c) Here both fractions have same denominators. So, the fraction with greater numerator is the highest factor

$$\therefore 4/5 < 5/5$$

(d) Here both numerators are same. So, the fraction having less denominator will be the highest factor

$$\therefore 3/7 < 3/5$$

3. Make five more such pairs and put appropriate signs.

Solutions:

(a) $5/8 < 6/8$

Here, the denominators are same. So, the fraction having greater numerator is the highest factor

(ii) $5/8 > 2/8$

Here, the denominators are same. So, the fraction having greater numerator is the highest factor

(iii) $6/13 > 6/18$

Here, the numerators are same. So, the fraction having lesser denominator will be the highest factor

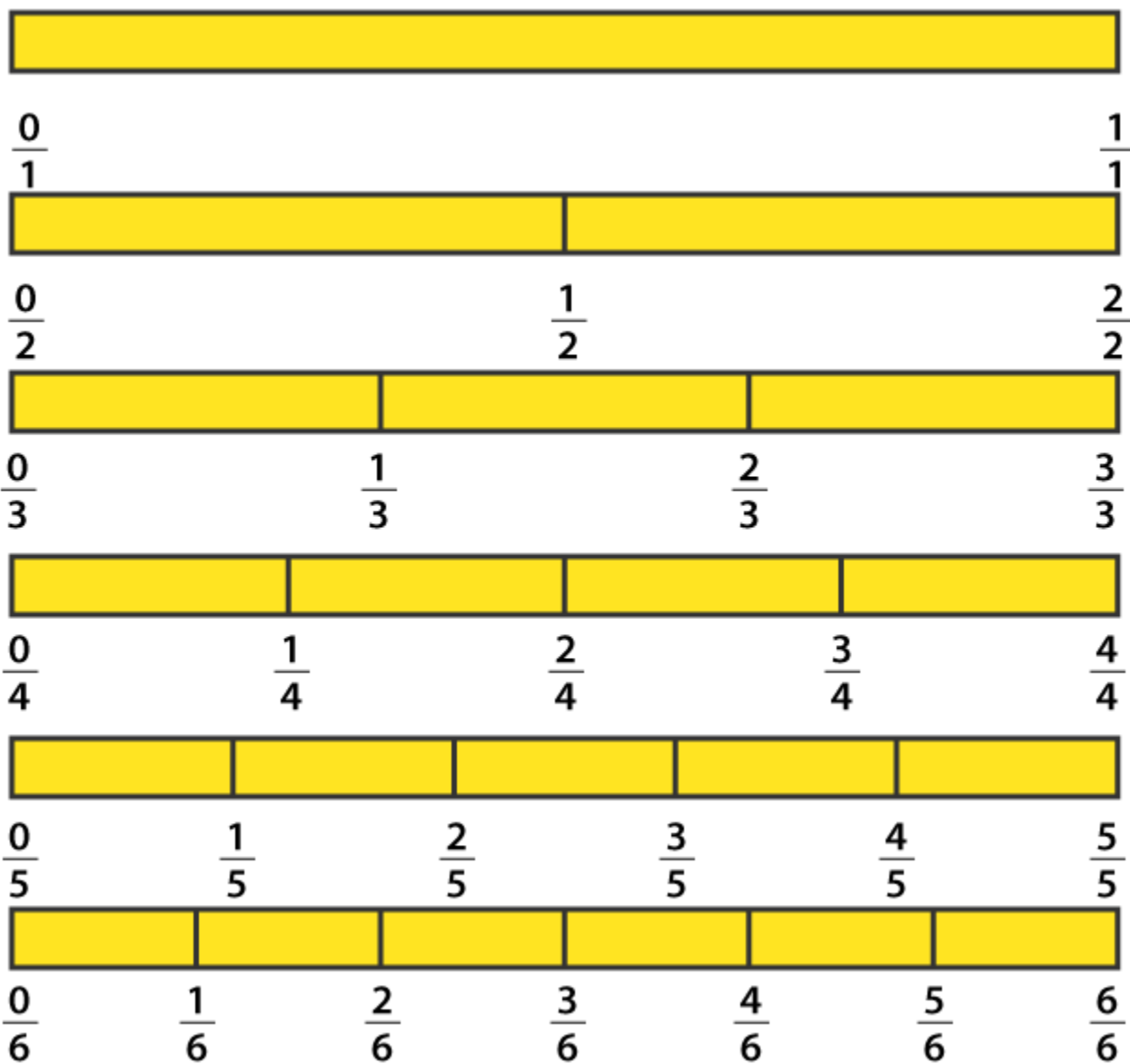
(iv) $5/25 > 3/25$

Here, the denominators are same. So, the fraction having greater numerator is the highest factor

(v) $9/50 < 9/45$

Here, the numerators are same. So, the fraction having lesser denominator will be the highest factor

4. Look at the figures and write '<' or '>', '=' between the given pairs of fractions.



(a) $\frac{1}{6} \square \frac{1}{3}$

(b) $\frac{3}{4} \square \frac{2}{6}$

(c) $\frac{2}{3} \square \frac{2}{4}$

(d) $\frac{6}{6} \square \frac{3}{3}$

(e) $\frac{5}{6} \square \frac{5}{5}$

Solutions:

(a) Here, the numerators are same. So, the fraction having lesser denominator is the greater

$$\therefore 1/6 < 1/3$$

$$(b) 3/4 = (3 \times 3) / (4 \times 3)$$

$$= 9/12$$

$$2/6 = (2 \times 2) / (6 \times 2)$$

$$= 4/12$$

Between $4/12$, $9/12$

Both fractions have same denominators. So, the fraction having greater numerator will be the greater

$$\therefore 9/12 > 4/12$$

$$3/4 > 2/6$$

(c) Here, the numerators are same. So, the fraction having lesser denominator is the greater

$$\therefore 2/3 > 2/4$$

(d) We get $6/6 = 1$ and $3/3 = 1$

$$\text{So, } 6/6 = 3/3$$

(e) Here, the numerators are same. So, the fraction having lesser denominator is the greater

$$\therefore 5/6 < 5/5$$

5. How quickly can you do this? Fill appropriate sign. ('<', '=', '>')

(a) $1/2 \square 1/5$

(b) $2/4 \square 3/6$

(c) $3/5 \square 2/3$

(d) $3/4 \square 2/8$

(e) $3/5 \square 6/5$

(f) $7/9 \square 3/9$

(g) $1/4 \square 2/8$

(h) $6/10 \square 4/5$

(i) $3/4 \square 7/8$

(j) $6/10 \square 3/5$

(k) $5/7 \square 15/21$

Solutions:

(a) Here, the numerators are same. So, the fraction having lesser denominator is greater

$$\therefore 1/2 > 1/5$$

(b) $2/4 = 1/2$ and $3/6 = 1/2$

$$\therefore 2/4 = 3/6$$

(c) $3/5 = (3 \times 3) / (5 \times 3)$

$$= 9/15$$

$$2/3 = (2 \times 5) / (3 \times 5)$$

$$= 10/15$$

Here, between $9/15$ and $10/15$ both have same denominators. Hence, the fraction having greater numerator will be the greater.

$$\therefore 3/5 < 2/3$$

(d) Here, $2/8 = 1/4$

As, $3/4$ and $1/4$ have same denominators. Hence, the fraction having greater numerator will be the greater

$$\therefore 3/4 > 2/8$$

(e) Here, the denominators are same. So, the fraction having greater numerator will be the greater

$$\therefore 3/5 < 6/5$$

(f) Here, the denominators are same. So, the fraction having greater numerator will be the greater

$$\therefore 7/9 > 3/9$$

(g) We know $2/8 = 1/4$

Hence, $1/4 = 2/8$

(h) $6/10 = (3 \times 2) / (5 \times 2)$

$$= 3/5$$

Between $3/5$ and $4/5$

Both have same denominators. So, the fraction having greater numerator will be greater

$$\therefore 6/10 < 4/5$$

$$(i) 3/4 = (3 \times 2) / (4 \times 2)$$

$$= 6/8$$

Between $6/8$ and $7/8$

Both have same denominators. So, the fraction having greater numerator will be greater

$$\therefore 3/4 < 7/8$$

$$(j) 6/10 = (3 \times 2) / (5 \times 2)$$

$$= 3/5$$

$$\therefore 6/10 = 3/5$$

$$(k) 5/7 = (5 \times 3) / (7 \times 3)$$

$$= 15/21$$

$$\therefore 5/7 = 15/21$$

6. The following fractions represent just three different numbers. Separate them into three groups of equivalent fractions, by changing each one to its simplest form.

(a) $2/12$ (b) $3/15$ (c) $8/50$ (d) $16/100$ (e) $10/60$ (f) $15/75$

(g) $12/60$ (h) $16/96$ (i) $12/75$ (j) $12/72$ (k) $3/18$ (l) $4/25$

Solutions:

$$(a) 2/12 = (1 \times 2) / (6 \times 2)$$

$$= 1/6$$

$$(b) 3/15 = (1 \times 3) / (5 \times 3)$$

$$= 1/5$$

$$(c) 8/50 = (4 \times 2) / (25 \times 2)$$

$$= 4/25$$

$$(d) 16/100 = (4 \times 4) / (25 \times 4)$$

$$= 4/25$$

$$(e) 10/60 = (1 \times 10) / (6 \times 10)$$

$$= 1/6$$

$$(f) 15 / 75 = (1 \times 15) / (5 \times 15)$$

$$= 1 / 5$$

$$(g) 12 / 60 = (1 \times 12) / (5 \times 12)$$

$$= 1 / 5$$

$$(h) 16 / 96$$

$$= (1 \times 16) / (6 \times 16)$$

$$= 1 / 6$$

$$(i) 12 / 75 = (4 \times 3) / (25 \times 3)$$

$$= 4 / 25$$

$$(j) 12 / 72 = (1 \times 12) / 6 \times 12)$$

$$= 1 / 6$$

$$(k) 3 / 18 = (1 \times 3) / (6 \times 3)$$

$$= 1 / 6$$

$$(l) 4 / 25$$

Totally there are 3 groups of equivalent fractions.

$$1 / 6 = (a), (e), (h), (j), (k)$$

$$1 / 5 = (b), (f), (g)$$

$$4 / 25 = (c), (d), (i), (l)$$

7. Find answers to the following. Write and indicate how you solved them.

(a) Is $5 / 9$ equal to $4 / 5$?

(b) Is $9 / 16$ equal to $5 / 9$?

(c) Is $4 / 5$ equal to $16 / 20$?

(d) Is $1 / 15$ equal to $4 / 30$?

Solutions:

(a) $5 / 9, 4 / 5$

Convert these fractions into like fractions

$$5 / 9 = (5 / 9) \times (5 / 5)$$

$$= 25 / 45$$

$$4 / 5 = (4 / 5) \times (9 / 9)$$

$$= 36 / 45$$

$$\therefore 25 / 45 \neq 36 / 45$$

Hence, $5 / 9$ is not equal to $4 / 5$

(b) $9 / 16, 5 / 9$

Convert into like fractions

$$9 / 16 = (9 / 16) \times (9 / 9)$$

$$= 81 / 144$$

$$5 / 9 = (5 / 9) \times (16 / 16)$$

$$= 80 / 144$$

$$\therefore 81 / 144 \neq 80 / 144$$

Hence, $9 / 16$ is not equal to $5 / 9$

(c) $4 / 5, 16 / 20$

$$16 / 20 = (4 \times 4) / (5 \times 4)$$

$$= 4 / 5$$

$$\therefore 4 / 5 = 16 / 20$$

Hence, $4 / 5$ is equal to $16 / 20$

(d) $1 / 15, 4 / 30$

$$4 / 30 = (2 \times 2) / (15 \times 2)$$

$$= 2 / 15$$

$$\therefore 1 / 15 \neq 4 / 30$$

Hence, $1 / 15$ is not equal to $4 / 30$

8. Ila read 25 pages of a book containing 100 pages. Lalita read $2 / 5$ of the same book. Who read less?

Solutions:

Total number of pages a book has = 100 pages

Lalita read = $2 / 5 \times 100 = 40$ pages

Ila read = 25 pages

∴ Ila read less than Lalita.

9. Rafiq exercised for $3/6$ of an hour, while Rohit exercised for $3/4$ of an hour. Who exercised for a longer time?

Solutions:

Rafiq exercised = $3/6$ of an hour

Rohit exercised = $3/4$ of a hour

$3/6, 3/4$

Convert these into like fractions

$$3/6 = (3 \times 2) / (6 \times 2)$$

$$= 6/12$$

$$3/4 = (3 \times 3) / (4 \times 3)$$

$$= 9/12$$

Clearly, $9/12 > 6/12$

$$\therefore 3/4 > 3/6$$

Therefore, Rohit exercised for a longer time than Rafiq.

10. In a class A of 25 students, 20 passed with 60% or more marks; in another class B of 30 students, 24 passed with 60% or more marks. In which class was a greater fraction of students getting with 60% or more marks?

Solutions:

Total number of students in Class A = 25

Students passed in first class in Class A = 20

Hence, fraction = $20/25$

$$= 4/5$$

Total number of students in Class B = 30

Students passed in first class in Class B = 24

Hence, fraction = $24/30$

$$= 4/5$$

∴ An equal fraction of students passed in first class in both the classes