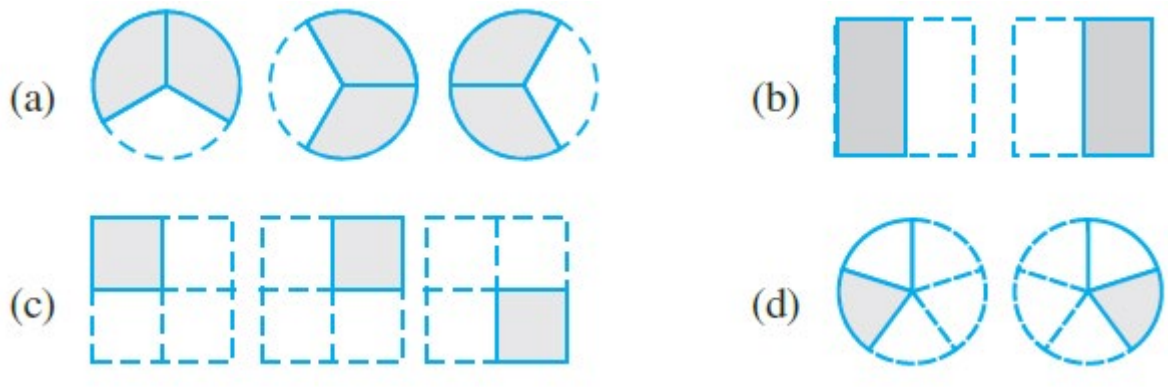
EXERCISE 2.2 PAGE: 36

1. Which of the drawings (a) to (d) show:

(i) 2 × (1/5) (ii) 2 × ½ (iii) 3 × (2/3) (iv) 3 × ¼



Solution:-

(i) 2 × (1/5) represents the addition of 2 figures, each represents 1 shaded part out of the given 5 equal parts.

∴ 2 × (1/5) is represented by fig (d).

(ii) 2 × ½ represents the addition of 2 figures, each represents 1 shaded part out of the given 2 equal parts.

∴ 2 × ½ is represented by fig (b).

(iii) 3 × (2/3) represents the addition of 3 figures, each represents 2 shaded parts out of the given 3 equal parts.

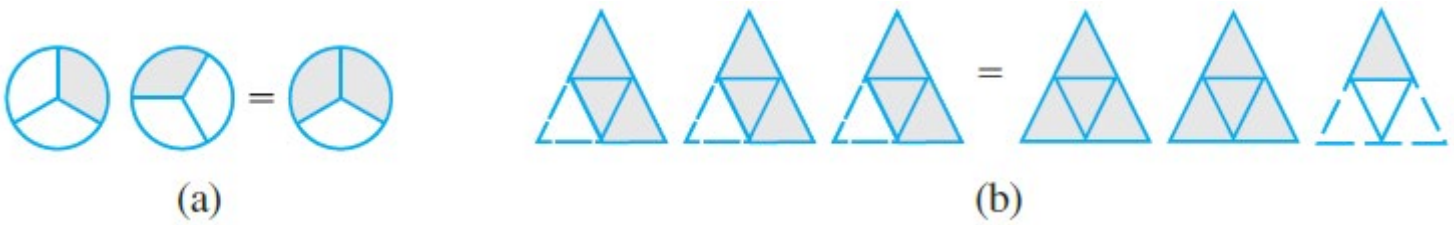
∴ 3 × (2/3) is represented by fig (a).

(iii) 3 × ¼ represents the addition of 3 figures, each represents 1 shaded part out of the given 4 equal parts.

∴ 3 × ¼ is represented by fig (c).

2. Some pictures (a) to (c) are given below. Tell which of them show:

(i) 3 × (1/5) = (3/5) (ii) 2 × (1/3) = (2/3) (iii) 3 × (3/4) = 2 ¼



(a) (b)

(c)

Solution:-

(i) 3 × (1/5) represents the addition of 3 figures, each represents 1 shaded part out of the given 5 equal parts and (3/5) represents 3 shaded parts out of 5 equal parts.

∴ 3 × (1/5) = (3/5) is represented by fig (c).

(ii) 2 × (1/3) represents the addition of 2 figures, each represents 1 shaded part out of the given 3 equal parts and (2/3) represents 2 shaded parts out of 3 equal parts.

∴ 2 × (1/3) = (2/3) is represented by fig (a).

(iii) 3 × (3/4) represents the addition of 3 figures, each represents 3 shaded parts out of the given 4 equal parts and 2 ¼ represents 2 fully and 1 figure having 1 part as shaded out of 4 equal parts.

∴ 3 × (3/4) = 2 ¼ is represented by fig (b).

3. Multiply and reduce to lowest form and convert into a mixed fraction:

(i) 7 × (3/5)

Solution:-

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (7/1) × (3/5)

= (7 × 3)/ (1 × 5)

= (21/5)

$=4\frac{1}{5}$

(ii) 4 × (1/3)

Solution:-

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (4/1) × (1/3)

= (4 × 1)/ (1 × 3)

= (4/3)

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

(iii) 2 × (6/7)

Solution:-

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (2/1) × (6/7)

= (2 × 6)/ (1 × 7)

= (12/7)

$=1\frac{5}{7}$

(iv) 5 × (2/9)

Solution:-

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (5/1) × (2/9)

= (5 × 2)/ (1 × 9)

= (10/9)

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

(v) (2/3) × 4

Solution:-

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (2/3) × (4/1)

= (2 × 4)/ (3 × 1)

= (8/3)

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

(vi) (5/2) × 6

Solution:-

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (5/2) × (6/1)

= (5 × 6)/ (2 × 1)

= (30/2)

= 15

(vii) 11 × (4/7)

Solution:-

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (11/1) × (4/7)

= (11 × 4)/ (1 × 7)

= (44/7)

$=6\frac{2}{7}$

(viii) 20 × (4/5)

Solution:-

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (20/1) × (4/5)

= (20 × 4)/ (1 × 5)

= (80/5)

= 16

(ix) 13 × (1/3)

Solution:-

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (13/1) × (1/3)

= (13 × 1)/ (1 × 3)

= (13/3)

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

(x) 15 × (3/5)

Solution:-

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (15/1) × (3/5)

= (15 × 3)/ (1 × 5)

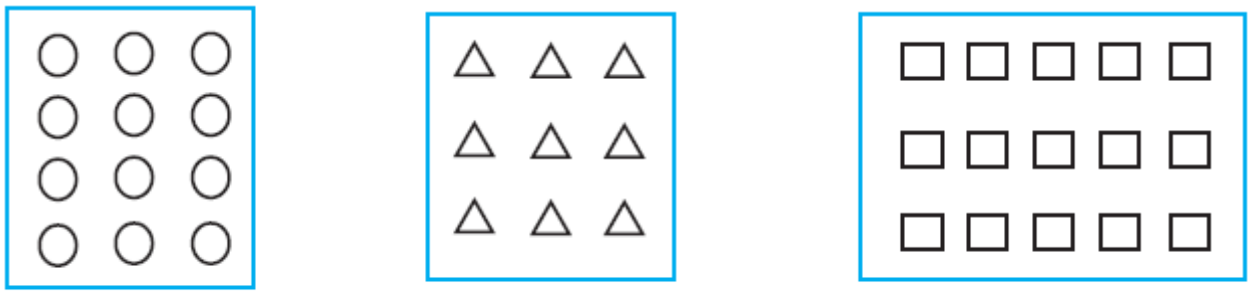
= (45/5)

= 9

4. Shade:

(i) ½ of the circles in box (a) (b) 2/3 of the triangles in box (b)

(iii) 3/5 of the squares in the box (c)



(a) (b) (c)

Solution:-

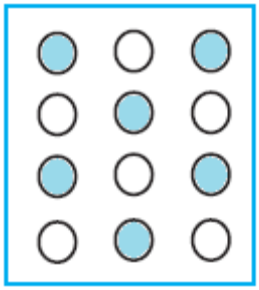
(i) From the question,

We may observe that there are 12 circles in the given box. So, we have to shade ½ of the circles in the box.

∴ 12 × ½ = 12/2

= 6

So we have to shade any 6 circles in the box.



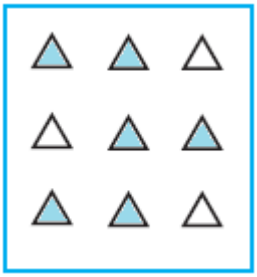
(ii) From the question,

We may observe that there are 9 triangles in the given box. So, we have to shade 2/3 of the triangles in the box.

∴ 9 × (2/3) = 18/3

= 6

So we have to shade any 6 triangles in the box.



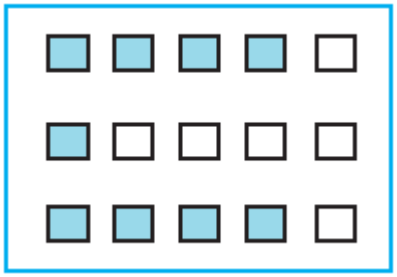
(iii) From the question,

We may observe that there are 15 squares in the given box. So, we have to shade 3/5 of the squares in the box.

∴ 15 × (3/5) = 45/5

= 9

So we have to shade any 9 squares in the box.



5. Find:

(a) ½ of (i) 24 (ii) 46

Solution:-

(i) 24

We have,

= ½ × 24

= 24/2

= 12

(ii) 46

We have,

= ½ × 46

= 46/2

= 23

(b) 2/3 of (i) 18 (ii) 27

Solution:-

(i) 18

We have,

= 2/3 × 18

= 2 × 6

= 12

(ii) 27

We have,

= 2/3 × 27

= 2 × 9

= 18

(c) ¾ of (i) 16 (ii) 36

Solution:-

(i) 16

We have,

= ¾ × 16

= 3 × 4

= 12

(ii) 36

We have

= ¾ × 36

= 3 × 9

= 27

(d) 4/5 of (i) 20 (ii) 35

Solution:-

(i) 20

We have,

= 4/5 × 20

= 4 × 4

= 16

(ii) 35

We have,

= 4/5 × 35

= 4 × 7

= 28

6. Multiply and express as a mixed fraction:

(a) 3 × $5\frac{1}{5}$

Solution:-

First convert the given mixed fraction into improper fraction.

=$5\frac{1}{5}$= 26/5

Now,

= 3 × (26/5)

= 78/5

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

(b) 5 × 6 ¾

Solution:-

First convert the given mixed fraction into improper fraction.

= 6 ¾ = 27/4

Now,

= 5 × (27/4)

= 135/4

= 33 ¾

(c) 7 × 2 ¼

Solution:-

First convert the given mixed fraction into improper fraction.

= 2 ¼ = 9/4

Now,

= 7 × (9/4)

= 63/4

= 15 ¾

(d) 4 × $6\frac{1}{3}$

Solution:-

First convert the given mixed fraction into improper fraction.

=$6\frac{1}{3}$= 19/3

Now,

= 4 × (19/3)

= 76/3

=$25\frac{1}{3}$

(e) 3 ¼ × 6

Solution:-

First convert the given mixed fraction into improper fraction.

= 3 ¼ = 13/4

Now,

= (13/4) × 6

= (13/2) × 3

= 39/2

= 19 ½

(f) $3\frac{2}{5}$ × 8

Solution:-

First convert the given mixed fraction into improper fraction.

=$3\frac{2}{5}$= 17/5

Now,

= (17/5) × 8

= 136/5

$=27\frac{1}{5}$

7. Find:

(a) ½ of (i) 2 ¾ (ii) $4\frac{2}{9}$

Solution:-

(i) 2 ¾

First convert the given mixed fraction into improper fraction.

= 2 ¾ = 11/4

Now,

= ½ × 11/4

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= ½ × (11/4)

= (1 × 11)/ (2 × 4)

= (11/8)

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

(ii)
$4\frac{2}{9}$

First convert the given mixed fraction into improper fraction.

$=4\frac{2}{9}$= 38/9

Now,

= ½ × (38/9)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= ½ × (38/9)

= (1 × 38)/ (2 × 9)

= (38/18)

= 19/9

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

(b) 5/8 of (i) $3\frac{5}{6}$ **(ii)** $9\frac{2}{3}$

Solution:-

(i)
$3\frac{5}{6}$

First convert the given mixed fraction into improper fraction.

$=3\frac{5}{6}$= 23/6

Now,

= (5/8) × (23/6)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (5/8) × (23/6)

= (5 × 23)/ (8 × 6)

= (115/48)

$=2\frac{19}{48}$

(ii)
$9\frac{2}{3}$

First convert the given mixed fraction into improper fraction.

$=9\frac{2}{3}$= 29/3

Now,

= (5/8) × (29/3)

By the rule Multiplication of fraction,

Product of fraction = (product of numerator)/ (product of denominator)

Then,

= (5/8) × (29/3)

= (5 × 29)/ (8 × 3)

= (145/24)

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

8. Vidya and Pratap went for a picnic. Their mother gave them a water bottle that contained 5 liters water. Vidya consumed 2/5 of the water. Pratap consumed the remaining water.

(i) How much water did Vidya drink?

(ii) What fraction of the total quantity of water did Pratap drink?

Solution:-

(i) From the question, it is given that,

Amount of water in the water bottle = 5 liters

Amount of water consumed by Vidya = 2/5 of 5 liters

= (2/5) × 5

= 2 liters

So, the total amount of water drank by Vidya is 2 liters

(ii) From the question, it is given that,

Amount of water in the water bottle = 5 liters

Then,

Amount of water consumed by Pratap = (1 – water consumed by Vidya)

= (1 – (2/5))

= (5-2)/5

= 3/5

∴ Total amount of water consumed by Pratap = 3/5 of 5 liters

= (3/5) × 5

= 3 liters

So, the total amount of water drank by Pratap is 3 liters