Let's pave the way for learning and

Move Forward

Standard - 6

Mathematics

State Council of Educational Research and Training (SCERT), Kerala
2022

Dear students,

The evaluation of the answer scripts of the First Terminal Examination 2022 and the classroom experiences shared by the teachers concerned, have brought to light the fact that our children have suffered some serious learning gap due to the non-availability of proper learning experiences as a result of the unprecedented situation created by the Covid Pandemic from 2019 to 2022. An activity book has been designed to assist children internalize the concepts which they ought to have mastered in the previous classes and with the intention to facilitate further learning. Necessary explanations and activities are included in the booklet to help children bridge the gap.It is hoped that this package will facilitate the learners for self-study or for studying with the help of their teachers and I wish them success in their endeavors to move forward with confidence.

Director

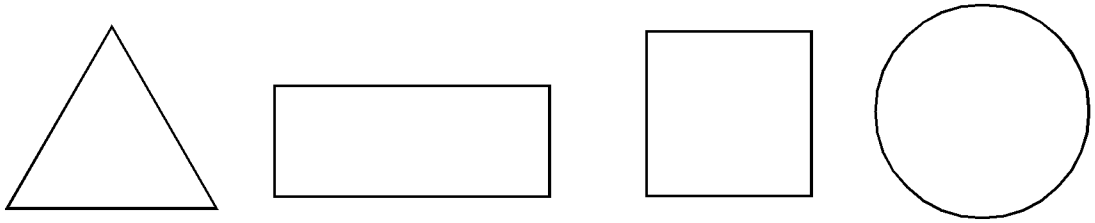
SCERT, Kerala

1. Angles - 1

- Measure the length of this line correctly.

_____

- Write the names of these figure. Write the measure of each side of the first 3 figures.



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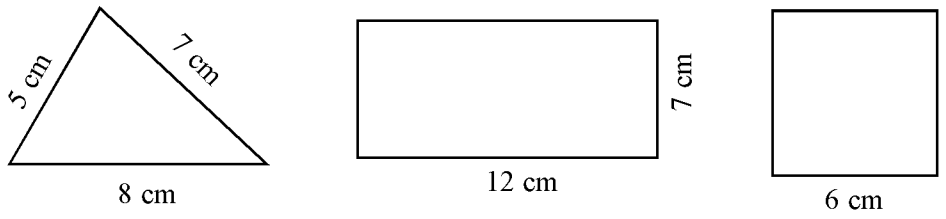
- Find the perimeter of the following figures.

1. Triangle 2. Rectangle 3. Square



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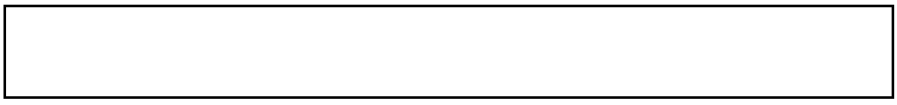
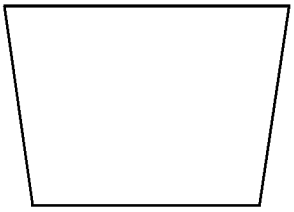
- When the length and breadth of a rectangle are added one get 36 centimetres. What is its perimeter?

- The length and perimeter of a rectangle are 10 centimetres and 34 centimetres. What is its breadth?

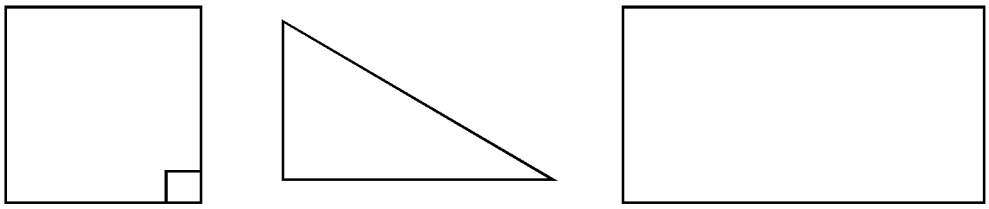


- This figure is not a rectangle. Why?

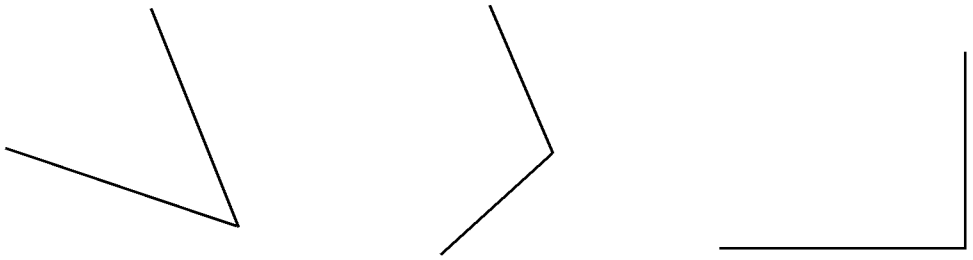


Angles - 2

- In each of the following figures, which are the figures with corners right angles. Measure them using a setsquare. See the first figure, the way of marking right angle. Mark other right angles in this way.



- Find the angles which are less than right, greater than right and right angle.



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- Draw a triangle with one corner right.

2. Average - 1

- See the way we found the sum of numbers.

$$63 + 64 + 69 + 73 + 75 + 70 = 60 + 60 + 60 + 70 + 70 + 70 + 3 + 4 + 9 + 3 + 5$$
$$= 390 + 24$$
$$= 414$$

$(3 \times 60) + (3 \times 70) + 24$ $= 180 + 210 + 24$ $= 414$	$(6 \times 60) + (3 \times 10) + 24$ $= 360 + 30 + 24$ $= 414$

Try to calculate the sum of these numbers in other ways.

- Find the sum of the following numbers in different ways.

1. 112, 117, 109, 120, 112, 115, 105

2. 1008, 1012, 1024, 1007, 1030

Average - 2

- If the cost of a note book is 72 rupees, what is the cost of 16 such note books?

  We want to find 16×72, right?

  $16 \times 72 = (10 \times 72) + (6 \times 72)$

  $= 720 + 432 \quad (6 \times 70 = 420,\ 6 \times 2 = 12)$

  $= 1152$

	70	2
10	700	20
6	420	12

$\Rightarrow$ 700 + 420 + 20 + 12 = **1152**

- How much amount is needed to give 64 rupees each to 22 persons?

  $64 \times 22 = (20 \times 64) + (2 \times 64)$

  $= 1280 + 128$

  $= 1408$

	60	4
20	1200	80
2	120	8

$\Rightarrow$ 1200 + 80 + 120 + 8 = **1408**

- Compute the following products in different ways.
  - 14×25
  - 18×35
  - 28×15

Average - 3

- Divide 312 rupees equally among 12 persons. How much did each get?

  For this, we must divide 312 by 12.

- 312 ÷ 12

  It is not possible to divide 3 hundred rupees equally to 12 persons. So convert it into 10 rupee notes. Then there will 30 + 1 = 31 ten rupees. If it is distributed to 12 persons, each will get 2 ten rupees and remaining 7 ten rupees. These 7 ten rupees with 2 one rupee, That is, 72 one rupee. If it is divided to 12 persons, each will get 6 rupees. So, in total, 2 ten rupees + 6 one rupee = 26 rupees.

```
    26
12 | 312
   | 24
     72
     72
```

- 312 ÷ 12

  If 10 rupees is distributed equally, remains 312 – 120 = 192. Again distributing 10 rupees equally, balance = 192 – 120 = 72. Then distributing 6 rupees each, balance amount = 72 – 72 = 0. Total amount = 10 + 10 + 6 = 26.

- 405 kilogram rice is divided equally among 15 families. How much will each family get?

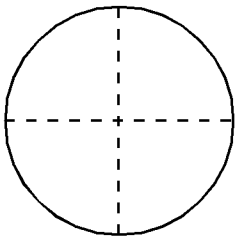
- A long string of length 484 centimetres is divided into equal pieces of length 15 centimetres. How many pieces will get?

  What is length of the remaining string?

3. Fractions - 1

Colour the parts as indicated. Write the fractions representing the parts.

- One part out of four equal parts



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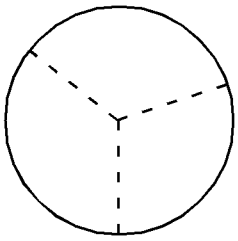
- Two parts out of three equal parts



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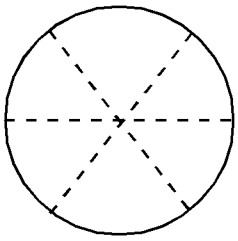
- Three parts out of six equal parts



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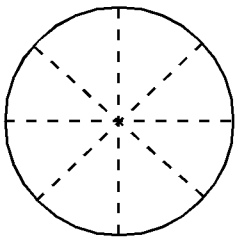
- Two parts out of eight equal parts



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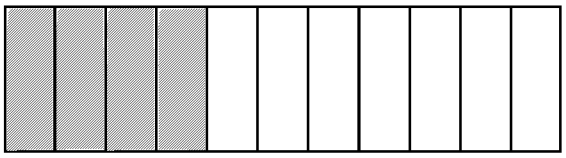
- Write the fractions representing the shaded parts and explain them. (Equal division)



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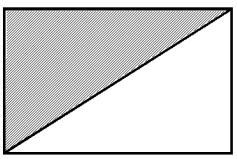

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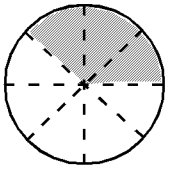

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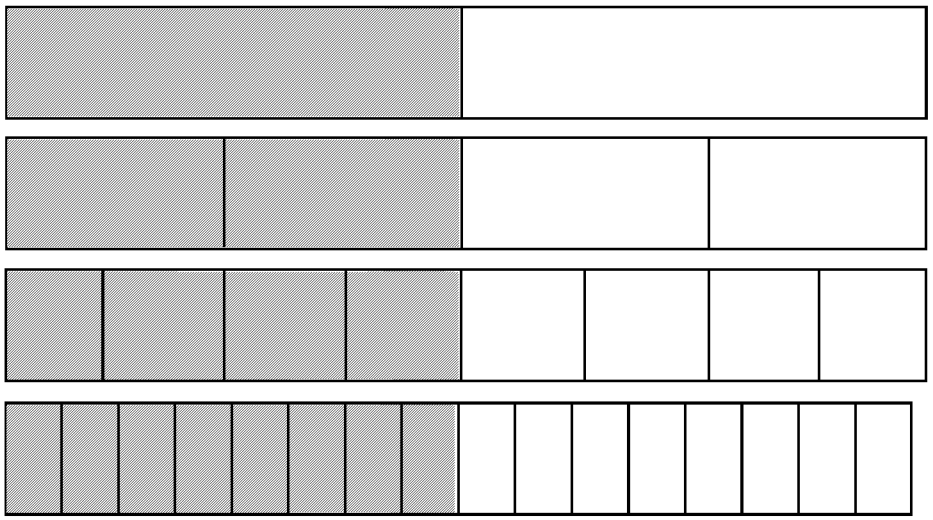
- Explain these fractions. Write the answer in your note book.

$\frac{1}{8}$; $\frac{5}{7}$; $\frac{4}{10}$; $\frac{12}{15}$; $\frac{13}{20}$

Fractions - 2

- Write the fractions representing the shaded part:



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- Observe these fractions. What is your finding?

$\frac{1}{2}$	$\frac{2}{4}$	$\frac{4}{8}$	$\frac{8}{16}$

- Like this, write the following fractions in 3 different ways

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

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

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

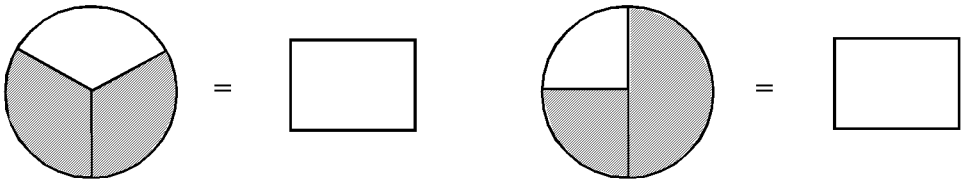
- The method to write a fraction in different ways:

What are equal fractions among these?

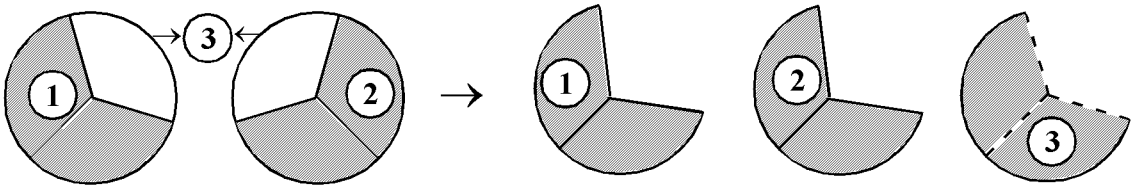
$\frac{1}{5}$ $\frac{3}{10}$ $\frac{2}{10}$ $\frac{4}{20}$ $\frac{3}{15}$ $\frac{5}{15}$

Fractions - 3

- Write the fraction representing the shaded portion:



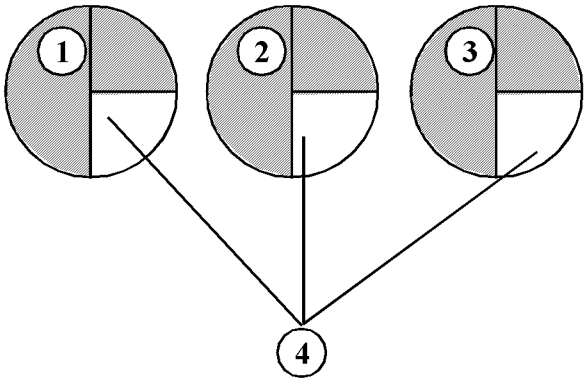
- 2 circles each is divided into 3 equal parts.



Each is $\frac{2}{3}$ part of circle. We can explain $\frac{2}{3}$ in two different ways.

1. Two parts out of 3 equal parts of an object.
2. One part out of 3 equal parts of two objects.

Now divide three circles, each into four parts.



Each part is $\frac{3}{4}$ of a circle.

$\frac{3}{4}$ → 3 parts out of 4 equal parts of an object

→ One part out of 4 equal parts of 3 objects.

Now, explain the following fractions in different ways:

$\frac{3}{5}$

$\frac{4}{7}$

Fractions - 4

- Which one is greater, $\frac{2}{3}$ or $\frac{3}{5}$?

  $\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12} = \frac{10}{15}$

  $\frac{3}{5} = \frac{6}{10} = \frac{9}{15} = \frac{12}{20}$

- Among $\frac{10}{15}$ and $\frac{9}{15}$, greater number is $\frac{10}{15}$. So, greater number is $\frac{2}{3}$.

Now write the following fractions in different forms and find the greater and smaller.

- $\frac{2}{3}; \frac{3}{4}$

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

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

- $\frac{5}{6}; \frac{3}{5}$

  $\frac{5}{6}$ = -------, -------, -------, -------

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

- $\frac{3}{3}; \frac{5}{6}$

- Without writing all equal fractions like this, how can we make both the denominators of the fractions equal?

Fractions - 5

Find the greater and smaller fractions in each case. Also, find their sum and difference.

- $\frac{3}{8}, \frac{2}{5}$

$\frac{3}{8} = \frac{5 \times 3}{5 \times 8} = \frac{15}{40}$ $\quad$ $\frac{2}{5} = \frac{8 \times 2}{8 \times 5} = \frac{16}{40}$

Greater $\frac{2}{5}$, $\quad$ Smaller $\frac{3}{8}$

Sum $= \frac{15}{40} + \frac{16}{40} = \frac{31}{40}$, $\quad$ Difference $= \frac{16}{40} - \frac{15}{40} = \frac{1}{40}$

- $\frac{3}{7}, \frac{4}{9}$

$\frac{3}{7} = \frac{27}{63}$ $\quad$ $\frac{4}{9} = \frac{28}{63}$

Greater $\frac{4}{9}$, $\quad$ Smaller $\frac{3}{7}$

Sum = _ _ _ _ _ _ _ _ _ _, $\quad$ Difference = _ _ _ _ _ _ _ _ _ _

- $\frac{5}{9}, \frac{4}{5}$ Greater : _____ Smaller : _____

Sum : _____ Difference :_____

- $\frac{3}{11}, \frac{2}{5}$ Greater : _____ Smaller : _____

Sum : _____ Difference :_____

- $\frac{5}{12}, \frac{3}{4}$ Greater : _____ Smaller : _____

Sum : _____ Difference :_____

- $\frac{2}{5}, \frac{3}{10}$ Greater : _____ Smaller : _____

Sum : _____ Difference :_____

5. Decimal Forms - 1

10 mm = 1 cm 100 cm = 1 metre 1000 metres = 1 km	1000 ml = 1 litre	1000 mg = 1 gram 1000 gram = 1 kg 1000 kg = 1 ton

Complete the following.

34 millimetres = _ _ _ _ _ _ _ _ centimetres _ _ _ _ _ _ _ _ millimetres

256 centimetres = _ _ _ _ _ _ _ _ metres _ _ _ _ _ _ _ _ centimetres

26 kilogmetres = _ _ _ _ _ _ _ _ metres

1238 metres = _ _ _ _ _ _ _ _ kilometre _ _ _ _ _ _ _ _ metres

12 centimetres = _ _ _ _ _ _ _ _ millimetres

8 metres = _ _ _ _ _ _ _ _ centimetres

2 litres = _ _ _ _ _ _ _ _ millilitres

5 kilograms = _ _ _ _ _ _ _ _ grams

1235 milligrams = _ _ _ _ _ _ _ _ grams _ _ _ _ _ _ _ _ milligrams

1585 millilitres = _ _ _ _ _ _ _ _ litre _ _ _ _ _ _ _ _ millilitres

In each of the following pairs of measures given below, write the greater measure.

1. 124 millimetres; 212 centimetres; 1 metre ☐

2. 3125 grams; 4175 milligrams; 4 kilograms ☐

3. 1275 millimetres; 1 litre ☐

Decimal Forms - 2

- Write the following numbers in the expanded form.

example: 1286 = $(1 \times 1000) + (2 \times 100) + (8 \times 10) + (6 \times 1)$

3457 = _

5240 = _

6034 = _

15005 = _

10018 = _

- Write the following fractions in the expanded form.

$\frac{326}{1000} = \frac{3}{10} + \frac{2}{100} + \frac{6}{1000}$

$\frac{82}{100} = \frac{8}{10} + \frac{2}{100}$

$\frac{365}{1000}$ = _

$\frac{420}{1000}$ = _

$\frac{308}{1000}$ = _

$\frac{40}{100}$ = _

6. Numbers - 1

Given below are numbers which were sorted and written in tables.

428, 339, 376, 4020, 528, 336, 5050, 425, 3000, 892, 5160

Property	Numbers	Reason
Divisible by 2	428, 376, 4020, 528, 336, 5050, 892 3000, 5160	If the digit in the ones place is 0, 2, 4, 6, 8 then it is divisible by 2
Divisible by 3	339, 4020, 528, 336, 3000, 5160	Because the sum of the digits is a multiply by 3 3 + 3 + 9 = 15 5 + 2 + 8 = 15
Divisible by 4	428, 376, 4020, 528, 336, 3000, 892, 5160	The number formed by the digits in the ones place and tens place is a multiple by 4 28, 76, 20, ...
Divisible by 5	4020, 5050, 425, 3000, 5160	Because the digit in the ones place is 0 or 5

Complete the following table by writing 3 digit number (exactly) divisible by the indicated number. (5 each)

By 2	By 3	By 4	By 5

Numbers - 2

- Numbers divisible by 1 and the number itself are called prime numbers.

  Example : We can divide the number 7 only by 1 and 7.

  Write all prime numbers less than 20.

- Numbers, by which we can divide a number exactly are its factors.

  Example : We can divide 20 exactly by 1, 2, 4, 5, 10 and 20. So, these are the factors of 20.

- Write all the factors of numbers upto 20.

Number	Factors
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Numbers - 3

- Every composite number can be expressed as a product of prime numbers.

  $4 = 2 \times 2$ $\quad\quad$ $20 = 2 \times 2 \times 5$

  $6 = 2 \times 3$ $\quad\quad$ $50 = 2 \times 5 \times 5$

  $8 = 2 \times 2 \times 2$

  $9 = 3 \times 3$

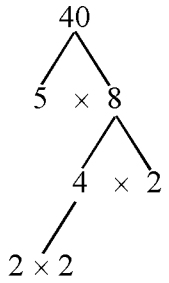
- To write a composite number as a product of prime numbers, divide the composite number repeatedly by prime numbers.

  Example: 40 ($40 \div 2 = 20$, $20 \div 2 = 10$, $10 \div 2 = 5$)

  $40 = 2 \times 2 \times 2 \times 5$

In another way,

$40 = 5 \times 2 \times 2 \times 2$



Again,

2	40
2	20
2	10
	5

$40 = 2 \times 2 \times 2 \times 5$

Now write the following numbers as product of prime numbers.

1. 70 = _____

2. 99 = _____

3. 100 = _____

4. 200 = _____

5. 150 = _____

7. Decimal Operations - 1

- Write the following fractions as decimal numbers.

Example: • $\frac{1}{10} = 0.1$ • $\frac{4}{100} = 0.04$ • $\frac{3}{1000} = 0.003$ • $2\frac{3}{10} = 2.3$

- $\frac{3}{10}$ = _ _ _ _ _ • $\frac{14}{100}$ = _ _ _ _ _ • $\frac{252}{1000}$ = _ _ _ _ _
- $\frac{7}{10}$ = _ _ _ _ _ • $\frac{7}{100}$ = _ _ _ _ _ • $\frac{7}{1000}$ = _ _ _ _ _
- $\frac{25}{10}$ = _ _ _ _ _ • $\frac{25}{100}$ = _ _ _ _ _ • $\frac{25}{1000}$ = _ _ _ _ _
- $3\frac{2}{10}$ = _ _ _ _ _ • $4\frac{3}{100}$ = _ _ _ _ _ • $5\frac{2}{1000}$ = _ _ _ _ _

- Write the following decimal numbers as fractions.

Example: • $0.2 = \frac{2}{10}$ • $0.41 = \frac{41}{100}$

- 0.4 = _ _ _ _ _ 0.37 = _ _ _ _ _ 0.325 = _ _ _ _ _
- 0.9 = _ _ _ _ _ 0.09 = _ _ _ _ _ 0.009 = _ _ _ _ _
- 2.3 = _ _ _ _ _ 0.23 = _ _ _ _ _ 0.023 = _ _ _ _ _

- Complete the following products in mind:

- 2×10 = _ _ _ _ _ 3×100 = _ _ _ _ _
- 26×1000 = _ _ _ _ _ 35×100 = _ _ _ _ _
- 40×100 = _ _ _ _ _ 32×1000 = _ _ _ _ _

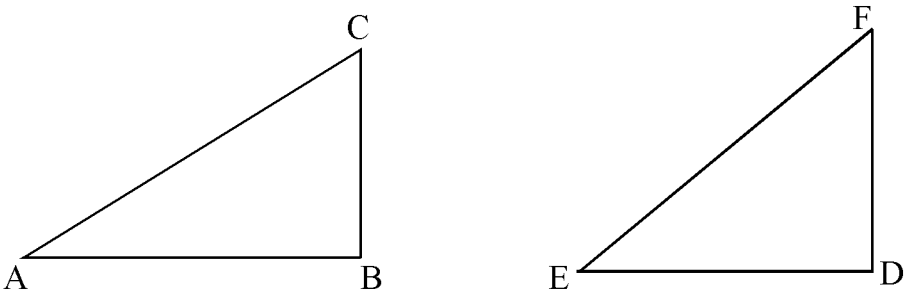
Decimal Operations - 2

Example : 2.25 + 0.5 = 2.75

- Find the sum
  - 0.5 + 0.25 + 0.75 = _
  - 0.25 + 1.43 + 0.006 = _
  - 1.45 + 0.732 + 0.4 = _
  - 4.2 + 4.02 + 4.002 = _
- Find the difference
  - 1.5 – 0.25 =_____
  - 2.5 – 0.75 =_____
  - 3.47 – 1.24 =_____
  - 5.82 – 0.06 =_____
  - 12.43 – 1.3 =_____
  - 8.67 – 1.006 =_____
  - 3.4 – 0.005 =_____
  - 0.04 – 0.004 =_____
- Fill in the blanks
  - 8.42 metres = 8 metres 42 cenitmetres
  - 3.5 cenitmetres = 3 cenitmetres 5 millimetres
  - 12.75 metres = _ _ _ _ metres _ _ _ _ cenitmetres
  - 4.5 metres = _ _ _ _ metres _ _ _ _ cenitmetres
  - 7.5 cenitmetres = _ _ _ _ centimetres _ _ _ _millimetres
  - 14.5 kilogram = _ _ _ _ kilogram _ _ _ _ gram
  - 3.750 litres = _ _ _ _ litres _ _ _ _ millilitres
  - 7.5 litres = _ _ _ _ litres _ _ _ _ millilitres

8. Joining Angles - 1

The figure given below are drawn using setsquare in Geometry box



- Write the measure of the following angles.

  ∠A = _ _ _ _ _ _ _ _ _ _ ∠B = _ _ _ _ _ _ _ _ _ _ ∠C = _ _ _ _ _ _ _ _ _ _

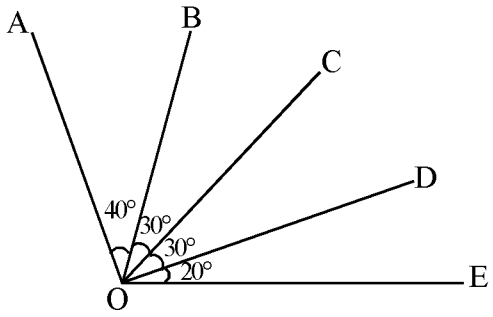
  ∠D = _ _ _ _ _ _ _ _ _ _ ∠E = _ _ _ _ _ _ _ _ _ _ ∠F = _ _ _ _ _ _ _ _ _ _

- Draw angles of given measure, by joining the corners of setsquares in a suitable way.

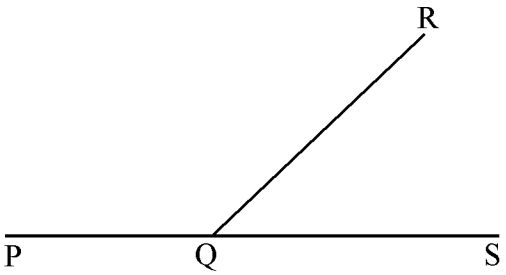
135°

75°

Joining Angles - 2



- How many angles are there in the figure?
- Write the name and measure of each angle in the figure.



- Angles in the figure are _____ and _____.
- Write the measure of each angle.

9. How Much of Hundered? - 1

- Compute the following
  - 300 ÷ 100 = 3
  - 1500 ÷ 100 = 15
  - 2400 ÷ 100 = _ _ _ _ _
  - 4800 ÷ 100 = _ _ _ _ _
  - 10000 ÷ 100 = _ _ _ _ _
  - 24000 ÷ 100 = _ _ _ _ _
- Find the quotient and remainder
  - 340 ÷ 100 = Quotient 3 Remainder 40
  - 420 ÷ 100 = _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
  - 3250 ÷ 100 = _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
  - 4225 ÷ 100 = _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
- Write the decimal form:
  - $\frac{215}{100}$ = 2.15
  - $\frac{85}{100}$ = _ _ _ _ _ _ _ _ _
  - $\frac{324}{100}$ = _ _ _ _ _ _ _ _ _
  - $\frac{1222}{100}$ = _ _ _ _ _ _ _ _ _
  - $\frac{4270}{100}$ = _ _ _ _ _ _ _ _ _
  - $\frac{1250}{100}$ = _ _ _ _ _ _ _ _ _
- Compute:
  - 42 × 18 = _ _ _ _ _
  - 6 × 0.08 = _ _ _ _ _
  - 4.2 × 18 = _ _ _ _ _
  - 60 × 0.08 = _ _ _ _ _
  - 0.42 × 18 = _ _ _ _ _
  - 600 × 0.08 = _ _ _ _ _
  - 420 × 18 = _ _ _ _ _
  - 6000 × 0.08 = _ _ _ _ _

How Much of Hundered? - 2

1. Complete the following:

   Example : • $\frac{24}{100} \times 12 = \frac{288}{100} = 2.88 \quad \left[\frac{24 \times 12}{100}\right]$

   Compute $0.24 \times 12 \quad \left(\frac{24}{100} = 0.24\right)$

   • $352 \times \frac{8}{100} = \frac{2816}{100} = 28.16$

   $(352 \times 0.08 = 28.16$, here $\left(\frac{8}{100} = 0.08\right)$

   • $200 \times \frac{12}{100} = \frac{2400}{100} = 24$

   • $3200 \times \frac{5}{100} =$ _____ = _____

   • $1250 \times \frac{4}{100} =$ _____ = _____

   • $1560 \times \frac{10}{100} =$ _____ = _____

   • $1422 \times \frac{2}{100} =$ _____ = _____

2. How many times? How many parts?

   • 4 times 10 is 40

   $\frac{1}{10}$ part of 40 is 4

   $\frac{1}{4}$ part of 40 is 10

   • 10 times 4 is 40

   • 6 times 5 is _____

   $\frac{1}{5}$ part of 30 is 6.

   • 5 times 6 is _____

   $\frac{1}{6}$ part of 30 is 5.

   • _____ times 5 is 35.

   • $1\frac{1}{2}$ times 3 is $4\frac{1}{2}$. $\left(1\frac{1}{2} = \frac{3}{2}\right)$

   $\frac{2}{3}$ part of $4\frac{1}{2}$ is 3.

   • $1\frac{1}{4}$ times 8 is 10 _____ _____

10. Letter Math - 1

1)

What is the perimeter of this rectangle?

Ans:

2)

What is the area?

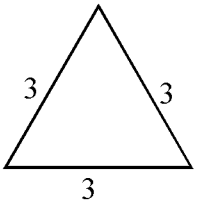
Ans:

3)

Find the perimeter and area of this square.

Ans:

4)



What is the perimeter of this triangle?

Ans:

Letter Math - 2

- In each set of numbers below, write the natural numbers before and after.
  - _____, 39, _____
  - _____, 60, _____
  - _____, 129, _____

  What is the relation between a number and its predecessor?

  What is the relation between a number and its successor?

- See the figure. It represents a calendar. Complete the blank spaces.

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Answer the following:

- What is the relation between a number on the calendar with the number on the right?
- What is the relation between a number on the calendar with the number on the left, top and its bottom?
- Find other relations of the numbers on the calender and list them.

11. Statistics - 1

The following table shows the number of students in a school in different classes. Complete it.

Class	Boys	Girls	Total
1	121	107	_____
2	98	_____	233
3	_____	125	216
4	103	108	_____
5	120	140	_____
6	109	_____	218
7	99	_____	203
Total	_____	_____	_____

Considering the above table prepare five different questions and their answers.