"Thurstan College, being unshaken amidst the COVID 19 challenges"

Series of Supportive Activities

Grade 7 - Mathematics

THURSTAN COLLEGE

COLOMBO 07

Thurstan College, being unshaken amidst the COVID 19 challenges

Series of Supportive Activities

Concept, Guidance & Supervision - Principal Mr. Pramuditha Wickramasinghe

Implementation - Deputy Principal (Education Development)
Mrs. N.G.H. Samanthini

-Assistant Principal (Grade6-13)
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-Grade Head (Grade 7) Mrs. Chandani Nanayakkara

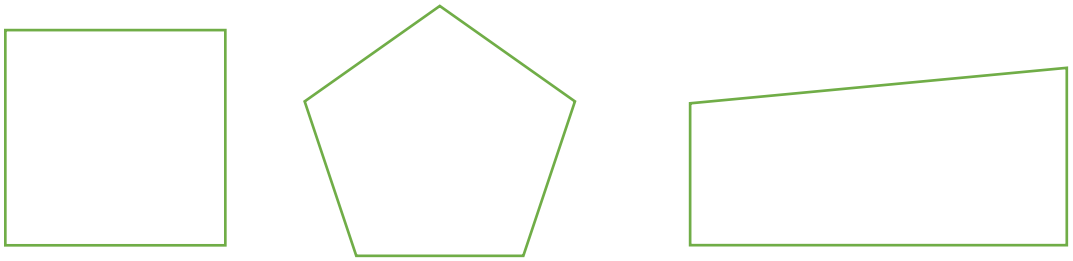
Preparation of Activity Books

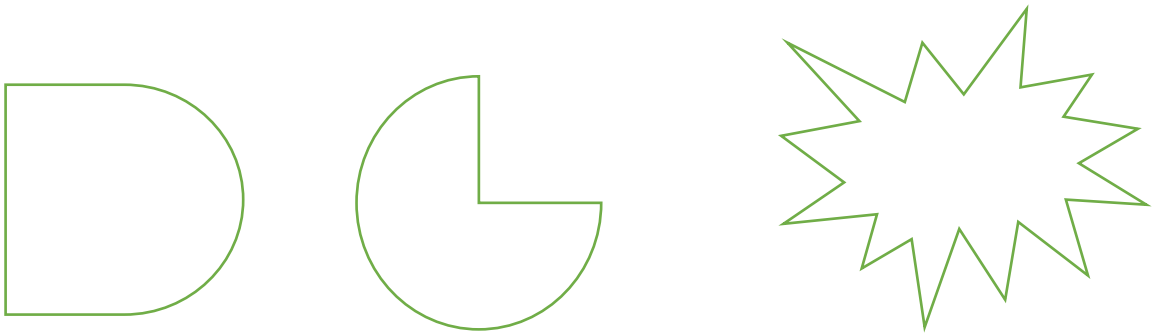
- Grade 6 (Mathematics) - Mrs. Chathuri Wathsala
- Grade 7 (Mathematics) - Mrs. Chathuri Wathsala
- Grade 8 (Mathematics) - Mrs. Dilini Lankesha
- Grade 9 (Mathematics) - Mrs. Dilini Lankesha
- Grade 10(Mathematics) - Mrs. Aruni Wijesundara
- Grade 11 (Mathematics) - Mrs. N. G. M. D. Ranmali

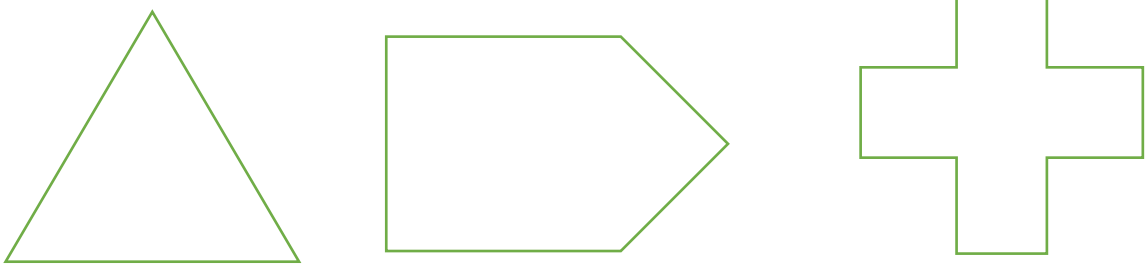
Grade 7 mathematics - Activity Book First term

Symmetry

1. Draw the symmetrical axis of the following pictures







2. Draw 2 figures having only one symmetrical axis.

3. Draw 2 figures having 2 symmetrical axes.

4. How many symmetrical axis can be seen in a circle. Illustrate using a circular lamina.

Sets

1. Write T next to each of the expression which clearly defines a set and F next to those which do not clearly define a set.

    1. Famous artists in Sri Lanka.
    2. Districts belongs to Southern Province
    3. Students who passed the grade 5 scholarship examination in 2020
    4. Letters of the word "COLOMBO"
    5. Vowel letters of the Sinhala alphabet
    6. Fortunate people in Sri Lanka
    7. Popular schools in Sri Lanka
    8. Square numbers
    9. Multiples of 3 between 1 and 100.
    10. Beautiful birds

2. Write down the following sets by writing its common property inside curly brackets.

    1. Even numbers between 21 and 30.

    2. Months of the year

    3. Letters of the word “Anuradhapura”

    4. Square numbers

    5. Digits of the number " 30 237 "

    6. Prime numbers from 1 to 20

    7. Whole numbers between 2 and 12

    8. Colours of the rainbow

    9. Vowels in the English alphabet

    10. Main directions

3. Write down the elements of the following sets inside curly brackets.

    1. Even numbers between 21 and 30.

    2. Months of the year

    3. Letters of the word “Anuradhapura”

    4. Square numbers

    5. Digits of the number " 30 237 "

    6. Prime numbers from 1 to 20

    7. Whole numbers between 2 and 12

    8. Colours of the rainbow

    9. Vowels in the English alphabet

    10. Main direction

4. Represent the following sets by a Venn diagram.

    1. Districts belongs to Southern Province in Sri Lanka

    2. Triangular numbers between 1 and 20

    3. Letters of the word " MATHEMATICS "

    4. Digits of the number " 454 677 "

    5. Colours of the rainbow

    6. Vowels in the English alphabet

    7. Multiples if 4 between 20 and 40

    8. Square numbers less than 100

Mathematical operations on whole numbers

1. Simplify.

Mathematical expressions with only addition

1. 5 + 7 + 3
2. 45 + 24 + 10
3. 6 + 14 + 8
4. 102 + 64 + 51

Mathematical expressions with only multiplication

1. 4 × 5 × 12
2. 9 × 1 × 26
3. 7 × 10 × 6
4. 3 × 7 × 5 × 2

Mathematical expressions with only subtraction

1. 100 – 25 - 10
2. 124 – 67 – 81
3. 11 – 1 – 5
4. 22 – 8 – 6

Mathematical expressions with only division

1. $50 \div 10 \div 5$
2. $264 \div 12 \div 2$
3. $1053 \div 9 \div 3$
4. $5600 \div 100 \div 2$

Mathematical expressions with only addition and subtraction (simplify from left to right)

1. $7 - 4 + 5$
2. $8 + 7 - 5$
3. $7 - 3 + 9$
4. $3 + 7 - 8$
5. $23 - 20 + 7$
6. $12 + 8 - 15$
7. $233 - 62 + 75$
8. $44 - 41 + 2$

Mathematical expressions with only addition and subtraction (simplify from left to right)

1. $10 \times 5 \div 25$
2. $9 \div 3 \times 8$
3. $80 \div 8 \times 3$
4. $15 \times 2 \div 10$
5. $360 \div 6 \times 4$
6. $34 \times 4 \div 2$

Simplify the following mathematical expressions.

1. $5 + 8 \div 2 + 3$
2. $30 + 15 \div 5 + 3$
3. $3 + 2 \times 8 \div 4 - 1$
4. $24 \div 8 + 7 - 1$
5. $17 - 5 \times 2 + 6$
6. $34 \times 2 - 14$
7. $6 + 4 \div 4 \times 1$
8. $10 \div 5 \times 4 + 3$

Simplify the following mathematical expressions with brackets.

1. $12 (2+ 7)$

2. $40 \div (7+ 3)$

3. $(16 + 4) \div 5$

4. $9 \times 3 – (2 + 5)$

5. $5 \times (11 + 3) + 10$

6. $8 + 3 \times (12 \div 6) – 5$

7. $7 – 2 + (5 + 6) + 4$

8. $(24 + 3) \div 9 + 5$

Factors and multiples

1. Find the digital root of the following numbers.
    1. 39
    2. 47
    3. 107
    4. 264
    5. 542
    6. 12 764
    7. 2 523
    8. 34 599
    9. 10 505
    10. 11 438

2. Examine the divisibility of the following numbers by 9 without dividing.
    1. 306
    2. 473
    3. 522
    4. 1068
    5. 7452
    6. 7002
3. Examine the divisibility of the following numbers by 3 without dividing.
    1. 71
    2. 64
    3. 363
    4. 451
    5. 2507
    6. 8244

4. Examine the divisibility of the following numbers by 4 without dividing.

    1. 300

    2. 442

    3. 656

    4. 816

    5. 1248

    6. 5324

Factors

Write down all the factors of the following numbers.

1. 36

2. 100

3. 15

4. 120

5. 48

Write down the prime factors of the following numbers.

1. 4

2. 12

3. 36

4. 25

5. 70

Write down the following numbers as a product of its prime factors.

1. 24

2. 50

3. 64

4. 400

5. 360

6. 250

Find the H.C.F of the following numbers.

1. 12 , 48

2. 21 , 63

3. 25 , 100

4. 8 , 12 , 40

5. 20 , 60 , 120

6. 21, 56

Find the L.C.M of the following numbers.

1. 4 , 5

2. 5 , 15

3. 2 , 40

4. 2 , 3 , 6

5. 9 , 27

6. 18 , 12 , 4

7. 50 , 60 , 20

Indices

Write down the following products in index notation

1. 5×5
2. $3 \times 3 \times 3 \times 3 \times 3$
3. $7 \times 7 \times 7 \times 7$
4. $2 \times 3 \times 2 \times 2 \times 2 \times 3$
5. $11 \times 11 \times 11 \times 11 \times 11$

Expand each of the following as a product of the given expression.

1. 7^4
2. 5^3
3. $6^3 \times 2^3$
4. $2^3 \times 3^2$
5. $5^2 \times 11^4$

Write down the following as a product of its prime numbers

1. 36

2. 15

3. 64

4. 180

5. 244

6. 500

7. 620

8. 1024

Write down the following expressions in index notation.

1. $y \times y \times y$

2. $x \times x \times x \times x \times x$

3. $a \times 2 \times a \times a \times 2 \times 2$

4. $m \times m \times m \times m \times 5 \times 5$

5. $a \times a \times b \times b \times b \times b$

Expand and write each of the following expressions as a product.

1. x^2

2. $5y^3$

3. $3^2 q^2$

4. a^4b^3

5. xy^5

Find the value of each of the following expressions by substituting $x=5$.

1. x^3

2. $2x^2$

3. $5x$

Find the value of each of the following expressions by substituting $a=3$ and $b=1$.

1. ab

2. a^3b^2

3. $2ab^4$

4. $7a^2b^5$

5. $12ab$

Time 

1. Write 2 instruments used to measure time.

2. Write 6 units of measuring time.

    1.
    2.
    3.
    4.
    5.
    6.

3. Match A and B columns appropriately.

A	B
• Millennium	A period of 100 years
• Century	A period of 10 years
• Decade	A period of 1000 years

4. State whether the years given below are leap years or not.

- B.C 1964 - _ _ _ _ _ _ _ _ _ _ _ _
- B.C 1512 - _ _ _ _ _ _ _ _ _ _ _ _ _
- B.C 1877 - _ _ _ _ _ _ _ _ _ _ _ _ _ _
- B.C 1500 - _ _ _ _ _ _ _ _ _ _ _ _ _ _
- B.C 1800 - _ _ _ _ _ _ _ _ _ _ _ _ _
- B.C 2000 - _ _ _ _ _ _ _ _ _ _ _ _

5. Write the decade, century and the millennium which each one of the following years belongs.

1. B.C 1504
   - Decade - _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
   - Century - _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
   - Millennium - _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
2. B.C 1899
   - Decade - _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
   - Century - _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
   - Millennium - _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
3. B.C 2020
   - Decade - _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
   - Century - _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
   - Millennium - _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

6. Fill in the blanks

- 60 seconds = _ _ _ _ _ _ _ minutes
- _ _ _ _ _ _ _ minutes = 1 hour
- _ _ _ _ _ _ _ _ hours = 1 day
- 30 days = _ _ _ _ _ _ month
- 12months = _ _ _ _ _ _ year
- 10 years = _ _ _ _ _ _ _ _ _
- _ _ _ _ _years = 1 century
- _ _ _ _ _ years = 1 millennium
- 365 days = _ _ _ _ _ _year
- 366 days = _ _ _ _ _ _ _ _ _ _ _ _ _ _

7. Match

• 1095 days	• 8 minutes 20 seconds
• 120 hours	• 8 hours
• 480 minutes	• 3 years
• 2 years	• 5 days
• 500 minutes	• 730 day

8. Add.

1. 3 years 4months 18 days + 5 years 2 months 20 days

2. 1 year 11 months 24 days + 1 year 8 months 28 days

3. 2 months 22 days + 6 months 14 days

4. 4 years 5 months 7 days + 2 years 10 months 12 days

5. Mr Nimalarathna is a teacher. He works 6years 5 months 21 days in the first school he was appointed and in the next 8 years 11 months and 2 days. Calculate how long he has been working in these 2 schools

9. Subtract

1. 5 years 3 months 6 days - 2 years 10 months 8 days

2. 11 months 20 days - 5 months 25 days

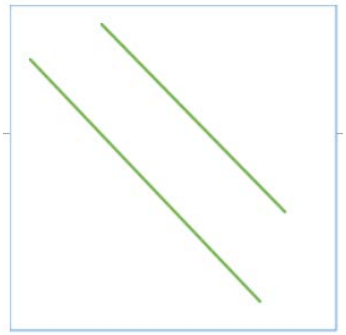
3. 7 years 5 months 28 days - 2 years 11 months 18 days

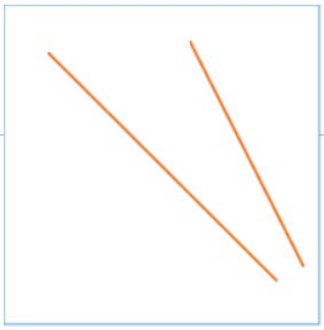
4. 4 years 4 months 4 days - 1 year 6 months 27 days

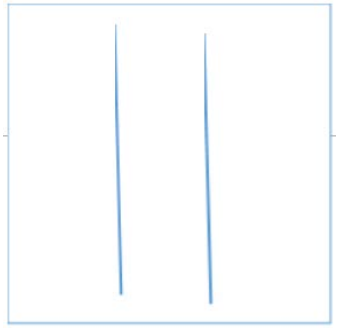
5. Dimuthu’s date of birth is 2012.10.7 .Find his age to 2020.04.19.

Parallel straight lines

1. Mention whether the following pairs of straight lines are parallel or not.







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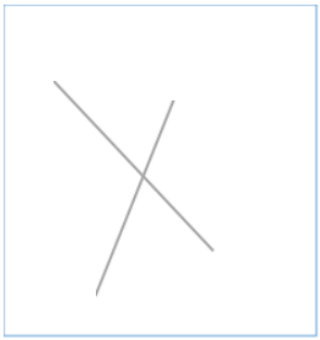

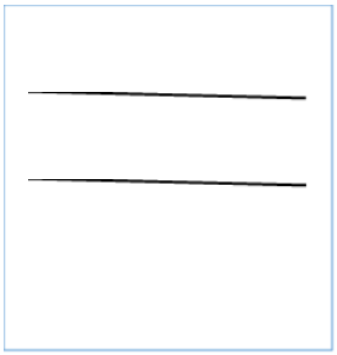

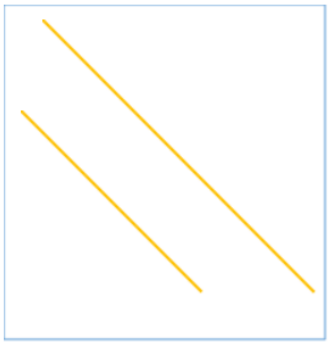

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2. Identify and mention the practical instances where you can see parallel lines.

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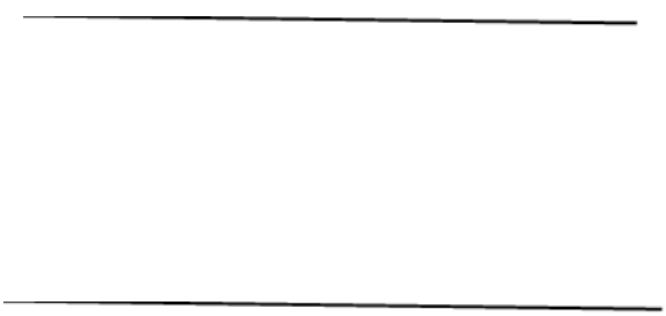
3. Find the perpendicular distance between the pair of parallel lines.



4. Draw a pair of parallel line having 5cm perpendicular distance between them.

5. Draw a pair of parallel line having 6.2cm perpendicular distance between them.

6. Draw a straight line of 8cm and name it as AB. Draw a straight line of 8cm parallel to AB having perpendicular distance of 4.9cm between them. Name that as CD.

Directed numbers

1. Draw number line extending from -5 to +8.

2. Mark the following points on a number line.

   A - (-2)
   B - (+7)
   C - (- 4)
   D - (+ 5)

3. Fill in the blanks using inequality sign appropriately.

   1. (-1) _____ (+1)
   2. 0 _____ (-4)
   3. (+ 8) _____ (-6)
   4. (-3) _____ (-1)
   5. (+6) _____ 0
   6. (-6) _____ (+11)
   7. (+30) _____ (-17)
   8. (-9) _____ (+9)
   9. (-24) _____ (+2)
   10. (-20) _____ (+20)

4. Add the following integers using a number line.

   (i) (+5) + (+5) =

   (ii) (+ 2) + (+6) =

   (iii) (-3) + (- 4) =

(iv) (-9) + (- 7) =

(v) (+11) + (-7) =

(vi) (-8) + (+ 8) =

(vii) (- 9) + (+ 20) =

(viii) (+4) + (- 9) =

5. Add the following integers without using a number line.

(i) (+3) + (+ 6) =

(ii) (+ 7) + (+ 11) =

(iii) (+ 1) + (+ 3) =

(iv) (+ 5) + (+ 6) =

(v) (- 4) + (- 7) =

(vi) (- 9) + (- 8) =

(vii) (- 2) + (- 7) =

(viii) (- 20) + (- 53) =

(ix) (- 8) + (+9) =

(x) (+6) + (- 11) =

(xi) (- 32) + (+ 20) =

(xii) (+56) + (- 78) =

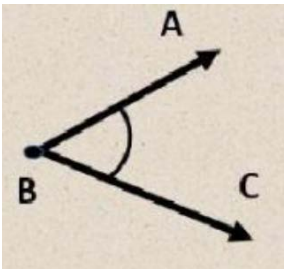
(xiii) 0 + (-6) =

(xiv) (- 13) + (+ 40) =

Angles

1. Write down the type of the following angles.

(i)



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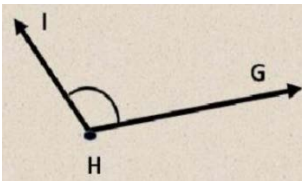
(ii)



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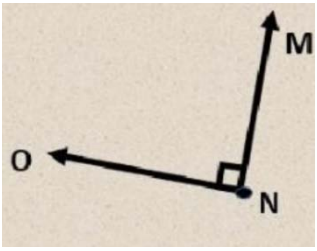
(iii)



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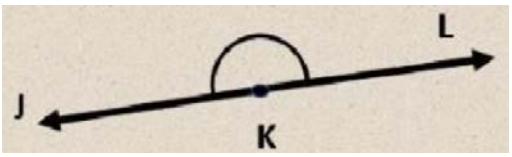
(iv)



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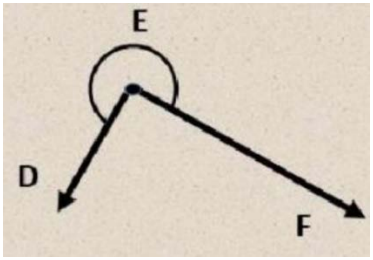
(v)



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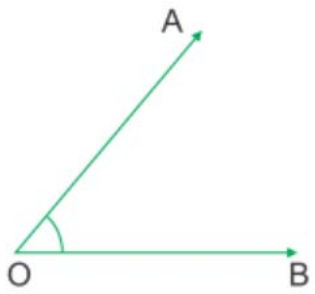
2. Measure and write the magnitudes of the following angles.

(i)



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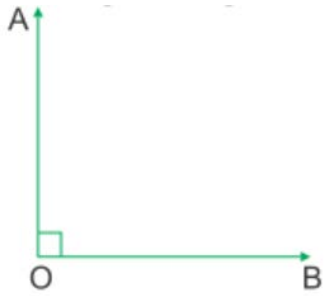
(ii)



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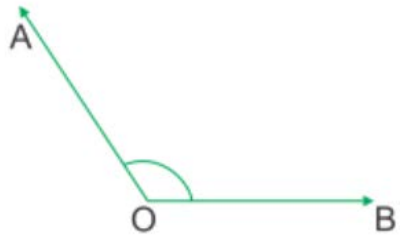
(iii)



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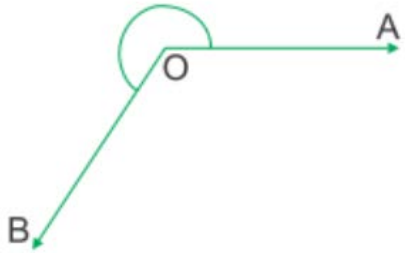
(iv)



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(v)

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3. Draw the following angles.

(i) 35°

(ii) 90°

(iii) 138°

(iv) 224°

(v) 310°