Class: 6; Subject: Arithmetic; Teacher: Sanjoy Chatterjee.

Arithmetic Solutions of Revision Exercise

Revision Exercise 1 (page no N 51)

1. (i) The place value of 8 = 800000.
The place value of 2 = 2000.
The place value of 4 = 40.
∴ The sum of the place values of the even digits = 800000 + 2000 + 40
= 802040. (Answer).

(ii) The place value of 6 = 6000000.
The place value of 8 = 8000.
∴ The sum of the place values of the even digits = 6000000 + 8000
= 6008000. (Answer).

(iii) The place value of 6 = 600000.
The place value of 8 = 800.
The place value of 4 = 4.
∴ The sum of the place values of the even digits = 600000 + 800 + 4
= 600804. (Answer).

2. The books sold in the year 2015 = 6843579.
The books sold in the year 2016 = 6843579 + 754326
= 7597905.
The books sold in the year 2017 = 7597905 – 890179
= 6707726. (Answer).
Now the books sold for three years = 6843579 + 7597905 + 6707726
= 21149210. (Answer).

3. The factory produces 17010 x 6 pencils in one day.
= 102060 pencils.
∴ in 173 days, the factory produces 102060 x 173 pencils.
= 17656380 pencils. (Answer).
≃ 18000000 pencils. (Round off to the nearest ten lakh) (Answer).

4. The co-prime numbers with 15 are 11,15; 13,15; 14,15; 16,15; 17,15; 19,15.

5. (i) 7803*
Here 8 + 3 = 11. Now 7 + 0 + * should be 11.
∴ * should be 4. (Answer).

(ii) 27*6854
Here 7 + 6 + 5 = 18. Now 2 + * + 8 + 4 = 14 + * should be 18.
∴ * should be 4. (Answer).

(iii) *9076845
Here 9 + 7 + 8 + 5 = 29. Now * + 0 + 6 + 4 = 10 + * should be 29, which is not possible as * is a single digit. ∴ the difference between 29 and (10 + *) should be 11 or 22. ∴ * should be 8. (Answer).

6. (i) 6*259

Here 6 + * + 2 + 5 + 9 = 22 + * should be multiple of 9.

∴ * should be 5. (Answer).

(ii) 870*3892

Here 8 + 7 + 0 + * + 3 + 8 + 9 + 2 = 37 + * should be multiple of 9.

∴ * should be 8. (Answer).

(iii) 10935*2

Here 1 + 0 + 9 + 3 + 5 + * + 2 = 20 + * should be multiple of 9.

∴ * should be 7. (Answer).

7. (i) 252

25 – (2 x 2) = 21 which is divisible by 7. ∴ 252 is divisible by 7.

(ii) 6843

684 – (3 x 2) = 678. ⟶ 67 – (8 x 2) = 51 which is not divisible by 7.

∴ 6843 is not divisible by 7.

(iii) 97657

9765 – (7 x 2) = 9751. ⟶ 975 – (1 x 2) = 973. ⟶ 97 – (3 x 2) = 91 which is divisible by 7. ∴ 97657 is divisible by 7.

8. (i) 2940

2	2940
2	1470
3	735
5	245
7	49
	7

∴ $2940 = 2 \times 2 \times 3 \times 5 \times 7 \times 7 = 2^2 \times 3 \times 5 \times 7^2$. (Answer).

(ii) 7938

2	7938
3	3969
3	1323
3	441
3	147
7	49
7	7

∴ $7938 = 2 \times 3 \times 3 \times 3 \times 3 \times 7 \times 7 = 2 \times 3^4 \times 7^2$. (Answer).

(iii) 34650

2	34650
3	17325
3	5775
5	1925
5	385
7	77
	11

∴ $34650 = 2 \times 3 \times 3 \times 5 \times 5 \times 7 \times 11 = 2 \times 3^2 \times 5^2 \times 7 \times 11$. (Answer).

9. 43 – 1 = 42; 73 – 3 = 70; 103 – 5 = 98.

Now the HCF of 42, 70 and 98 = 14.

∴ the required greatest number is 14. (Answer).

10. The LCM of 7, 8, 11, and 12 = 1848.
1848 seconds = 30 minutes 48 seconds.
∴ after 30 minutes 48 seconds the bells will toll together. (Answer).

11. We know that, the product of two numbers = the product of their HCF and LCM.
According to question, the 1st number is 2 x 252 = 504.
∴ 504 x other number = 24 x 5544.
∴ the other number = (24 x 5544) ÷ 504.
= 264. (Answer).

12. (i)

$$\begin{array}{r} 3214 \\ -\ 0350 \\ \hline 2864 \end{array}$$

(ii)

$$\begin{array}{r} 4496 \\ -\ 1709 \\ \hline 2787 \end{array}$$

13. (i)

$$\begin{array}{r} ABC14 \\ +\ ABC15 \\ \hline 157229 \end{array}$$

Here C+C may be 1+1 or 6+6. If C+C = 2, then B+B cannot be 7. ∴ C = 6.
Now carry 1 + B+B =7 or 17. ∴ B may be 3 or 8. If B = 3, then A+A cannot be 15.
∴ B = 8. Now carry 1+A+A = 15. ∴ A = 7.
(ii) Here C+C+C = C. ∴ C may be 0 or 5. As sum is CCC, ∴ C never be 0.
∴ C = 5. Now carry 1+B+B+B = 5 or 15 or 25. ∴ B must be 8. Now carry 2+A+A+A = 5 or 15 or 25. ∴ A = 1.

14. (i) $111111^2 = 12345654321$.
(ii) $1111111^2 = 1234567654321$.

Subject: Algebra; Class: 6; Teacher: Sanjoy Chatterjee.

Algebra Solutions of Revision Exercise

Revision Exercise 1 (page no A 29).

1. (i) ½ (x + 7).
(ii) 17z – 5.
(iii) 3{m +(–p)} +11.
(iv) $\frac{a+b}{-3}$.

2. (i) $x^2 + y^2 + z^2 + 2xy + 2yz + 2zx$.
$= 3^2 + 1^2 + (-4)^2 + 2 \times 3 \times 1 + 2 \times 1 \times (-4) + 2 \times (-4) \times 3$.
$= 9 + 1 + 16 + 6 - 8 - 24$.
$= 32 - 32$.
$= 0$. (Answer).
(ii) $x^3 + y^3 + z^3 - 3xyz$.
$= 3^3 + 1^3 + (-4)^3 - 3 \times 3 \times 1 \times (-4)$.
$= 27 + 1 - 64 + 36$.
$= 64 - 64$.
$= 0$. (Answer).

(iii) $4x^2 + y^2 + z^2 - 4xy - 2yz + 4zx$.

$= 4 \times 3^2 + 1^2 + (-4)^2 - 4 \times 3 \times 1 - 2 \times 1 \times (-4) + 4 \times (-4) \times 3$.

$= 4 \times 9 + 1 + 16 - 12 + 8 - 48$.

$= 36 + 1 + 16 - 12 + 8 - 48$.

$= 61 - 60$.

$= 1$. (Answer).

(iv) $x^2 + 4y^2 + \frac{z^2}{4} - 4xy + 2yz - xz$.

$= 3^2 + 4 \times 1^2 + \frac{-4^2}{4} - 4 \times 3 \times 1 + 2 \times 1 \times (-4) - 3 \times (-4)$.

$= 9 + 4 + \frac{16}{4} - 12 - 8 + 12$.

$= 9 + 4 + 4 - 12 - 8 + 12$.

$= 29 - 20$.

$= 9$. (Answer).

3. Yes it is a polynomial.

(i) $3x^2 - 7x + 9$.

$= 3 \times 1^2 - 7 \times 1 + 9$.

$= 3 - 7 + 9$.

$= 12 - 7$.

$= 5$. (Answer).

(ii) It is not a polynomial.

(iii) $-11x - 13x^2 + 1$.

$= -11 \times 1 - 13 \times 1^2 + 1$.

$= -11 - 13 + 1$.

$= -24 + 1$.

$= -23$. (Answer).

(iv) It is not a polynomial.

4. $\{(17a - 8b) + (9b - 24a)\} - \{(2a - 3b) + (-5b + 7a)\}$.

$= \{17a - 8b + 9b - 24a\} - \{2a - 3b - 5b + 7a\}$.

$= \{-7a + b\} - \{9a - 8b\}$.

$= -7a + b - 9a + 8b$.

$= -16a + 9b$. (Answer).

5. (i) $(7a - 8b) + (-9a - 11b) + (23b - 7a) + (-15b + 12a)$.

$= 7a - 8b - 9a - 11b + 23b - 7a - 15b + 12a$.

$= 7a - 9a - 7a + 12a - 8b - 11b + 23b - 15b$.

$= 19a - 16a + 23b - 34b$.

$= 3a - 11b$. (Answer).

(ii) $(5a - 3b + 6c) + (6b - 3c - 15a) + (11b - 7a - 19c) + (10c + 5b - 6a) + (10c + 5a - 9b)$.

$= 5a - 3b + 6c + 6b - 3c - 15a + 11b - 7a - 19c + 10c + 5b - 6a + 10c + 5a - 9b$.

$= 5a - 15a - 7a - 6a + 5a - 3b + 6b + 11b + 5b - 9b + 6c - 3c - 19c + 10c + 10c$.

$= 10a - 28a + 22b - 12b + 26c - 22c$.

$= -18a + 10b + 4c$. (Answer).

6. 2a – 3b – [6a – 8b – {7a – (9b – 8a) – 3b}].
= 2a – 3b – [6a – 8b – {7a – 9b + 8a – 3b}].
= 2a – 3b – [6a – 8b – {7a + 8a – 9b – 3b}].
= 2a – 3b – [6a – 8b – {15a – 12b}].
= 2a – 3b – [6a – 8b – 15a + 12b].
= 2a – 3b – [6a –15a – 8b + 12b].
= 2a – 3b – [–9a + 4b].
= 2a – 3b + 9a – 4b.
= 2a + 9a – 3b – 4b.
= 11a – 7b. (Answer).

7. 13z – [16x – {12y – (7x – 3y + 4z) + 5z – (9x – 10y + 5z)}].
=13z – [16x – {12y –7x + 3y –4z + 5z –9x + 10y –5z}].
=13z – [16x – { –7x –9x + 12y + 3y + 10y –4z + 5z –5z}].
=13z – [16x – { –16x + 25y –4z }].
=13z – [16x + 16x –25y + 4z].
=13z –16x –16x + 25y –4z].
= –16x –16x + 25y – 4z + 13z.
= – 32x + 25y + 9z. (Answer).

8. (6x – 9) + (8x + 24) – (6x – 8) – (10x – 2) – (15x – 10) + (12 – 9x).
= 6x – 9 + 8x + 24 – 6x + 8 –10x + 2 –15x + 10 + 12 – 9x.
= 6x + 8x – 6x –10x –15x – 9x – 9 + 24 + 8 + 2 + 10 + 12.
= 14x – 40x + 56 –9.
= –26x + 47. (Answer).

9. A man has Rs. (15a – 3b).
His spends Rs. {(a + b) + (3a – 7b) + (4a – 3b) + (5b + 4a)}.
= Rs. (a + b + 3a – 7b + 4a – 3b + 5b + 4a).
= Rs. (a + 3a + 4a + 4a + b – 7b – 3b + 5b).
= Rs. (12a – 4b).
∴ the remaining amount is Rs. {(15a – 3b) – (12a – 4b)}.
= Rs. (15a – 3b – 12a + 4b) = Rs (3a + b).
∴ Rs. (3a + b) is left. (Answer).

10. (i) 3x – 4 = 2x + 7.
⇒ 3x – 2x = 7 + 4.
⇒ x = 11. (Answer).
(ii) 10 – 11y = 15 – 6y.
⇒ – 11y + 6y = 15 – 10.
⇒ – 5y = 5.
⇒ 5y = – 5.
⇒ y = –1. (Answer).
(iii) $\frac{5x-1}{3}$ = 8.
⇒ 5x – 1 = 8 x 3.
⇒ 5x = 24 + 1.
⇒ 5x = 25.

⇒ x = 5. (Answer).

(iv) (12x – 9) – (5x – 1) = (7x – 5) – (4x – 9).

⇒ 12x – 9 – 5x + 1 = 7x – 5 – 4x + 9.

⇒ 12x – 5x – 7x + 4x = – 5 + 9 + 9 – 1.

⇒ 4x = 12.

⇒ x = 12/4.

⇒ x = 3. (Answer).

11. Let the father's present age be x years. According to the problem, the age of his son is (x – 29) years. ∴ x + (x – 29) = 51.

⇒ x + x – 29 = 51.

⇒ 2x – 29 = 51.

⇒ 2x = 51 + 29.

⇒ 2x = 80.

⇒ x = 80/2.

⇒ x = 40. Now x – 29 = 40 – 29 = 11.

∴ the ages of the man and his father are 11 years and 40 years respectively.

12. Let the number be x.

According to the problem,

(4x – 2) ÷ 5 = 6.

⇒ (4x – 2) = 6 X 5.

⇒ 4x – 2 = 6 X 5.

⇒ 4x = 30 + 2.

⇒ x = 32/4.

⇒ x = 8. ∴ the required number is 8. (Answer).

Subject: Geometry; Class: 6; Teacher: Sanjoy Chatterjee.

Geometry Solutions of Revision Exercise

Revision Exercise 1 (page no G 23).

1. (i) Not correct. (A line has no definite length.)

(ii) Not correct. (AB and BA are not two different straight lines.)

(iii) Yes, it is correct.

(iv) Not correct. (A ray has no definite length.)

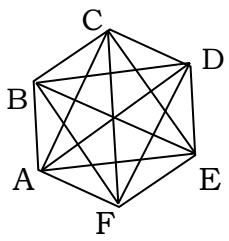
2. Three line segments can be drawn with any two of the given three points, A, B and C as the end points. They are AB, BC and CA.

3. (i) Eight line segments.

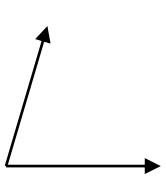
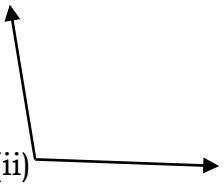
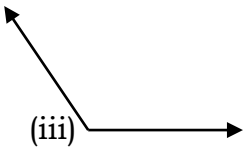
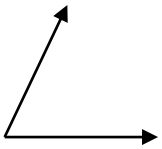
(ii) Nine line segments.

4.

.



There are 15 line segments can be drawn. They are AB, BC, CD, DE, EF, FA, AC, AD, AE, BF, BE, BD, CF, CE, and DF.

5. (i)  (ii)  (iii)  (iv) 

6. $30^0 + 90^0 = 120^0$. ∴ The required magnitude is 120^0.

7. Acute angles are: 73^0, 20^0 and 89^0,
Obtuse angles are: 155^0, 120^0 and 91^0.

8. (i) $48^0 + 42^0 = 90^0$; so, this pair of angles are complementary.
(ii) $37^045/ + 52^0\ 15/ = 90^0$; so, this pair of angles are complementary.
(iii) $45^035/30// + 44^024/30// = 90^0$; so, this pair of angles are complementary.

9. (i) $76^0 + 104^0 = 180^0$; yes, this pair of angles are supplementary.
(ii) $92^0 + 98^0 = 190^0$; no, this pair of angles are not supplementary.
(iii) $119^030/ + 60^0\ 30/ = 180^0$; yes, this pair of angles are supplementary.

10. (i) $180^0 - 108^0 = 72^0$. ∴ The required supplementary angle is 72^0.
(ii) $180^0 - 90^0 = 90^0$. ∴ The required supplementary angle is 90^0.
(iii) $180^0 - 172^0 = 8^0$. ∴ The required supplementary angle is 8^0.

11. (i) The complementary angle of $50^0 = (90^0 - 50^0) = 40^0$.
The supplementary angle of $50^0 = (180^0 - 50^0) = 130^0$.
(ii) The complementary angle of $35^0 = (90^0 - 35^0) = 55^0$.
The supplementary angle of $50^0 = (180^0 - 35^0) = 145^0$.
(iii) The complementary angle of $70^030/ = (90^0 - 70^030/) = 19^030/$.
The supplementary angle of $50^0 = (180^0 - 70^030/) = 109^030/$.
(iv) The complementary angle of $84^045/ = (90^0 - 84^045/) = 5^015/$.
The supplementary angle of $50^0 = (180^0 - 84^045/) = 95^015/$.

12. Half of a right angle = ½ of $90^0 = 45^0$.
Its complementary = $90^0 - 45^0 = 45^0$.
Its supplementary = $180^0 - 45^0 = 135^0$.

13. Let the angle be x.
According to question, $(180^0 - x) : (90^0 - x) = 8 : 3$.
$\Rightarrow 3(180^0 - x) = 8(90^0 - x)$.
$\Rightarrow 540^0 - 3x = 720^0 - 8x$.
$\Rightarrow -3x + 8x = 720^0 - 540^0$.
$\Rightarrow 5x = 180^0$.
$\Rightarrow x = 36^0$. (Answer.)

14. Let the angle be x. ⇒
According to question, $(180^0 - x) = 6(90^0 - x)$.
$\Rightarrow 180^0 - x = 540^0 - 6x$.
$\Rightarrow -x + 6x = 540^0 - 180^0$.
$\Rightarrow 5x = 360^0$.
$\Rightarrow x = 72^0$. (Answer.)

Revision Exercise 2 (page no G 41-42).

1. (i) The measures of the pairs of adjacent angles are: 20^0 and 25^0; 20^0 and 60^0; 25^0 and 35^0; 35^0 and 45^0.

(ii) The measures of the pairs of adjacent angles are: 15^0 and 30^0; 70^0 and 110^0.

2. (i) The angles <AOE and <BOD are vertically opposite angles.
(ii) The angle adjacent to <OBA is <OBD.
(iii) The angle vertically opposite to <AOB is <EOD.
(iv) The angles <AEB and <BEC form a linear pair.

3. (i) $x = 180^0 - 68^0$. [Linear pair]
$\Rightarrow x = 112^0$.
(ii) $x + x + x + x = 180^0$. [Same side of a straight line]
$\Rightarrow 4x = 1800$.
$\Rightarrow x = 45^0$.
(iii) $(x + 30^0) + (x + 20^0) + (x + 10^0) = 180^0$. [Same side of a straight line]
$\Rightarrow 3x + 60^0 = 180^0$.
$\Rightarrow 3x = 180^0 - 60^0$.
$\Rightarrow x = 40^0$.

4. (i) According to given figure, $x + 70^0 = 180^0$. [Linear pair]
$\Rightarrow x = 180^0 - 70^0$.
$\Rightarrow x = 110^0$.
Now $x + y = 180^0$. [Linear pair]
$\Rightarrow 110^0 + y = 180^0$.
$\Rightarrow y = 180^0 - 110^0$.
$\Rightarrow y = 70^0$.
(ii) According to given figure, $x = 65^0$. [Vertically opposite angle.]
Now $y + 65^0 + 40^0 = 180^0$. [Same side of a straight line]
$\Rightarrow y + 105^0 = 180^0$.
$\Rightarrow y = 180^0 - 105^0$.
$\Rightarrow y = 75^0$.
(iii) According to given figure, x = linear pair of 130^0.
$\Rightarrow x = 180^0 - 130^0$.
$\Rightarrow x = 50^0$.
Now $x + 50^0 + y = 180^0$. [Same side of a straight line]
$\Rightarrow 50^0 + 50^0 + y = 180^0$.
$\Rightarrow y = 180^0 - 100^0$.
$\Rightarrow y = 80^0$.

5. According to given question, <DCA : < DCB = 2 : 3.
Let <DCA : < DCB = 2x : 3x.
Now, <DCA + < DCB = 180^0. [Linear pair]
$\Rightarrow 2x + 3x = 180^0$.
$\Rightarrow 5x = 180^0$. $\Rightarrow x = 36^0$.
$\therefore$ <DCA = 2 X 36^0. = 72^0; and <DCB = 3 X 36^0 = 108^0.

6. According to given figure,
(i) The angle alternate to the <PQD = linear pair of 50^0.
$\Rightarrow$ <PQD = 130^0.
(ii) The co interior angle to the <APQ = $180^0 - 130^0$.
$\Rightarrow$ <APQ = 50^0.
(iii) The corresponding angle to the <DQF = vertically opposite of 50^0.
$\Rightarrow$ <DQF = 50^0.

7. According to given figure,
The vertically opposite of 70^0 + linear pair of 140^0 + x = 180^0.
⇒ $70^0 + 40^0 + x = 180^0$. [Sum of the angles of a triangle]
⇒ $x = 180^0 - (70^0 + 40^0)$.
⇒ $x = 180^0 - 110^0$.
⇒ $x = 70^0$.
8. According to given figure,
$z = 180^0 - 45^0$. [Linear pair]
⇒ $z = 135^0$.
$w = 45^0$. [Corresponding angle]
$y = 45^0$. [Alternate interior angle]
$x + w = 180^0$. [Co-interior angles]
⇒ $x = 180^0 - 45^0$. [$w = 45^0$]
⇒ $x = 135^0$.
9. According to given figure,
<ABC = $180^0 - 80^0$. [Co-interior angles]
$= 100^0$.
<ABE = <EBC = $100^0 \div 2 = 50^0$. [As BE is the bisector of <ABC.]
∴ $x = 80^0 + 50^0$. [An exterior angle is equal to sum of opposite two interior angles.]
⇒ $x = 130^0$.
10. According to given figure,
$x = 180^0 - (80^0 + 30^0)$
⇒ $x = 180^0 - 110^0$.
⇒ $x = 70^0$.
Now, $z = 30^0$. [Alternate interior angle]
In triangle ABC, $x + y + z = 180^0$.
⇒ $y = 180^0 - (x + z)$.
⇒ $y = 180^0 - (70^0 + 30^0)$.
⇒ $y = 180^0 - (100^0)$.
⇒ $y = 80^0$.
11. According to given figure,
x = alternate interior of 80^0 + co-interior of 105^0.
⇒ $x = 80^0 + (180^0 - 105^0)$.
⇒ $x = 80^0 + 75^0$.
⇒ $x = 155^0$.

Revision Exercise 3 (page no G 52).
1. (i) It is a scalene triangle.
(ii) It is an isosceles triangle.
(iii) It is an equilateral triangle.
(iv) It is an obtuse angled triangle.
(v) It is an acute angled triangle.
(vi) It is a right angled triangle.
2. The third angle = $180^0 - (75^0 + 75^0)$.
$= 180^0 - 150^0$.
$= 30^0$.
3. According to question, $x^0 + 4x^0 + 5x^0 = 180^0$.
⇒ $10x^0 = 180^0$.

$\Rightarrow x^0 = 180^0 \div 10.$
$\Rightarrow x^0 = 18^0.$
Now, $4x^0 = 4 \text{ X } 18^0 = 72^0$; and $5x^0 = 5 \text{ X } 18^0. = 90^0.$
$\therefore$ The angles of the triangle are 18^0, 72^0 and 90^0.
No, the given triangle is not an obtuse angled triangle.
4. Let each equal angle be x^0.
$\therefore 90^0 + x^0 + x^0 = 180^0.$
$\Rightarrow 2x^0 = 180^0 - 90^0.$
$\Rightarrow 2x^0 = 90^0.$
$\Rightarrow x^0 = 45^0$. $\therefore$ The required angles are 90^0, 45^0 and 45^0.
5. Let the smallest angle be x^0.
$\therefore$ the biggest angle be $2x^0$.
According to question, the third angle is ½ of $(x^0 + 2x^0)$.
$\therefore x^0 + 2x^0 +$ ½ of $(x^0 + 2x^0) = 180^0.$
$\Rightarrow 3x^0 +$ ½ of $3x^0 = 180^0.$
$\Rightarrow 4\frac{1}{2}x^0 = 180^0.$
$\Rightarrow x^0 = 180^0 \div 4\frac{1}{2}.$
$\Rightarrow x^0 = 180^0 \, X \, \frac{2}{9}$.
$\Rightarrow x^0 = 40^0$. Now, $2x^0 = 80^0$ and ½ of $(x^0 + 2x^0)$ = ½ of $3x^0$ = ½ of $120^0 = 60^0$.
$\therefore$ the required angles are 40^0, 80^0 and 60^0.
6. (i) According to given figure, $x + (x + 20) + (x + 10) = 180^0.$
$\Rightarrow 3x + 30^0 = 180^0.$
$\Rightarrow 3x = 150^0.$
$\Rightarrow x = 50^0.$
(ii) According to given figure,
$90^0 + (x + 10) + (x - 10) = 180^0.$
$\Rightarrow 2x + 90^0 = 180^0.$
$\Rightarrow 2x = 90^0.$
$\Rightarrow x = 45^0.$
(iii) According to given figure,
$x = 90^0 + 30^0.$ [An exterior angle is equal to the sum of opposite two interior angles]
$\Rightarrow x = 120^0.$
(iv) According to given figure,
The third angle = $180^0 - (40^0 + 120^0) = 20^0.$
Now, $x + 70^0 + 20^0 = 180^0.$
$\Rightarrow x = 180^0 - 90^0.$
$\Rightarrow x = 90^0.$
7. The set, $\{50^0, 60^0, 70^0\}$, is the only set that can be the angles of a triangle.

If you have any doubt, you may ask with the help of your parent(s) by the contact no 9434512261. Stay at home. May God safe you all.

THE END