**F.3 Mathematics – SOLUTIONS for NCM 3A Chapter 4 Supplementary Worksheet**

**Level 1**

1. (a)

0

−2

 (b)

0

4

 (c)

−1

0

 (d)

−1

0

 (e)

−3

0

 (f)

0

5

2. (a) 

 (b) 

 (c) 

 (d) 

3. (a) <

 (b) <

 (c) >

 (d) <

 (e) >

 (f) >

4. (a)

0

23.5

 (b) Yes.

 It is because . Therefore is a solution.

 (c) No.

 It is because 25.3 > 23.5. Therefore 25.3 is not a solution.

 (d) No.

 It is because  = 23.66 (correct to 2 decimal places) > 23.5. Therefore  is not a solution.

5. (a) 

 

 

 (b) 

 

 i.e. 

 (c) 

 

 

 (d) 

 

 

 (e) 

 

 

 (f) 

 

 

6. (a) *y* = 8 – *x*

 (b) When *y* > 20,

 i.e. 8 – *x* > 20

 –*x* > 20 – 8

 –*x* > 12

 *x* < –12

 (c) When *y* > 5,

 i.e. 8 – *x* > 5

 –*x* > 5 – 8

 –*x* > –3

 *x* < 3

  π > 3

  *x* cannot be π.

7. Samson’s sister is (*x* + 3) years old.

 

  The greatest value of *x* is 14.

8. Let their distance is 3 km apart after at least *x* minutes.

 

  Their minimum distance is 3 km apart after at least 1.5 minutes.

**Level 2**

1. (a) 

 (b) 

 (c) 

 (d) 

2.  < 6

  < (15) (6)

  < 90

 25*x* + 5–3*x*–3 < 90

 22*x* + 2 < 90

 22*x* < 90–2

 22*x* < 88

 *x* <

 *x* < 4

  The non-negative integers that satisfy the given condition are 3, 2, 1 and 0.

3. (a) 3*x* + *y* = 1

 3*x* = 1 – *y*

 

 (b)  

 1 – *y* 

 1 – *y* 

 –*y* 

 –*y* 

 *y* 

 

 (c)

0

7

4. (a) 

 

 

 (b) 

 

 

 (c) 

 

 i.e. 

 (d) 

 

 

5. (a) (i) 

 

 

 (ii)

0

3

2

 (iii) The largest integer that satisfies the given inequality is 2.

 (b) (i) 

 

 

 (ii)

0

−

–1

–2

 (iii) The largest integer that satisfies the given inequality is –2.

6. The fare for each child is.

 According to the given information, we have

 

  The bus fare for one adult is at most $19.

7. Let the score of the fifth test be *x*.

 

  The minimum score he must get in the fifth test is 30.

8. (a) The tens digit of the two-digit number is 8 − *x*.

 The value of this two-digit number is .

 According to the given information, we have

 

 

 (b)  *x* is the units digit of the two-digit number.

  *x* must be a positive integer which is smaller than 8.

 i.e. The possible values of *x* can only be 5, 6 or 7.

  The possible values of the two-digit number are 35, 26 or 17.