**SENIOR ONE MATHEMATICS COMPREHENSIVE 2020 MARKING SCHEME**

ANSWER 1

(a) n(A) = 4 2marks

(b) n (B) = 3 2marks

(c) n (C) = 3 2marks

(d) n (A) + n (B) = 4 + 3 = 7 2marks

(e) A ∪ B ∪ C = {2, 4, 6, 8} ∪ {1, 2, 3) ∪ {6, 8, 10} 2marks

= {1, 2, 3, 4, 6, 8, 10}

answer 2

(a) fg(x) = f[g(x)] = f(x2 + 2) 3marks

Replace x by x2 + 2 to get

f(x2 + 2) = 2(x2 + 2) – 1

This gives fg(x) = 2x2 + 4 – 1

= 2x2 + 3

Hence fg(x) = 2x2 + 3

(b) gf(x) = g[f(x)] = g(2x – 1) 3marks

Replace x in x2 + 2 by (2x – 1) to get

g(2x – 1) = (2x – 1)2 + 2

= (4x2 – 4x + 1) +2

= 4x2 – 4x + 3

(c) gf(3) = 4 × 32 – 4 × 3 + 3 4marks

= 36 – 12 + 3

= 24 + 3

Hence gf(3) = 27

**answer 3**

a)= 3marks

=

=



b)-10 1marks

c)(+9)x(+4)=+36 1marks

**Answer 4 5marks**

f(x) = x + 4

Let y = f(x)

y = x + 4 (Interchange the y and x)

x= y + 4 (Solve for y)

x – 4 = y

y = x – 4

f-1(x) = x – 4

**Answer 5 5marks**

19 200 FRW = (160 000 × 4.5 × T ): 100

1 920 000 FRW = 720 000T

T = 2.666

= 3 years

**Answer 6 10marks**

Let the smaller number be x.

Then, the larger number is x + 18.

Sum of the two numbers = x + (x + 18).

i.e. x + (x + 18) = 120

x + x + 18 = 120

2x + 18 = 120

2x = 102

∴ x = 51

Thus, the smaller number is 51 and the larger number is 51 + 18 = 69

Answer 7 a 3marks

x – 3 < 7

⇒ x – 3 + 3 < 7 + 3

⇒ x < 10

Thus, x < 10 is the solution of the inequality x – 3 < 7.

answer 7b 2marks









answer 8 10marks

a)A line is a set of points which are joined together.

b)Corresponding angles are angles that occupy the same relative position when a transversal cuts through two straight lines.

c)An angle greater than 90° but less than 180° is called an obtuse angle e.g 120°, 98°, 164°, 178°, 145º and so o

d) An angle greater than 180° but less than 360° (full revolution) is called a reflex angle

e)Alternate angles are pairs of interior angles on the opposite side of a transversal (one on each intersection point).

The curved area of the cone = area of the sector.

Area of sector = 

The curved area of the cone = area of the sector.

= 

∴ curved surface = 47.13 cm2

b) The circumference of the base of the cone = the length of the arc of the sector.

.

Length of the arc = 

= 216 /360 × 2 × 3.14 × 5

= 18.852 cm

**Answer 10**

i)Complete the table below: (**10marks)**

|  |  |  |
| --- | --- | --- |
| Mass() | Frequency, |  |
| 70 | 2 | 140 |
| 80 | 7 | 560 |
| 90 | 9 | 180 |
| 100 | 11 | 1100 |
| 110 | 8 | 880 |
| 120 | 3 | 360 |
|  |  |  |

ii)Mean mass :

=

 3marks

iii)the modal mass is 100kg because it is the highest frequence (3marks)

iv)the lowest mass is 70kg 2marks

V) The highest mass is 120kg 2marks